VOLUME IX NUMBER 6

# WESTERN INDUSTRY

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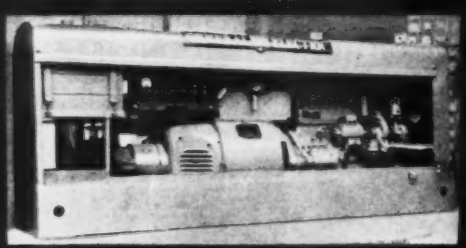

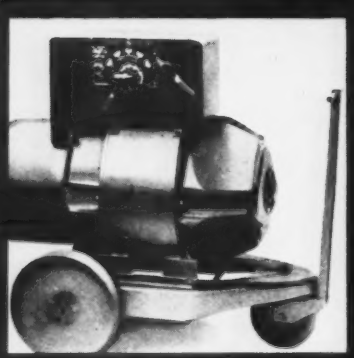

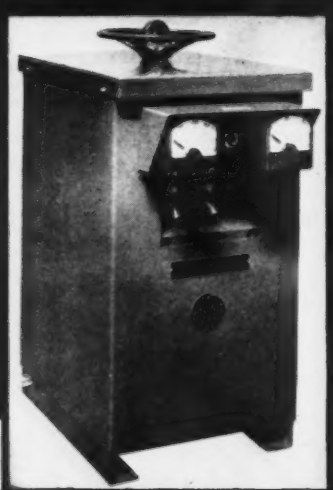

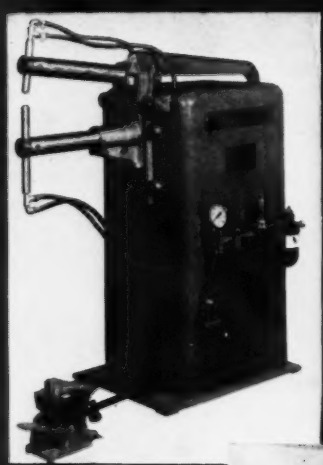

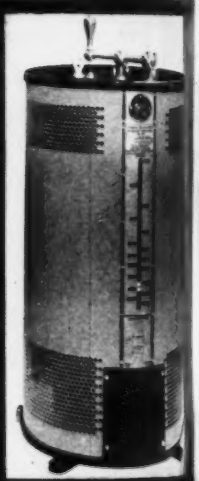

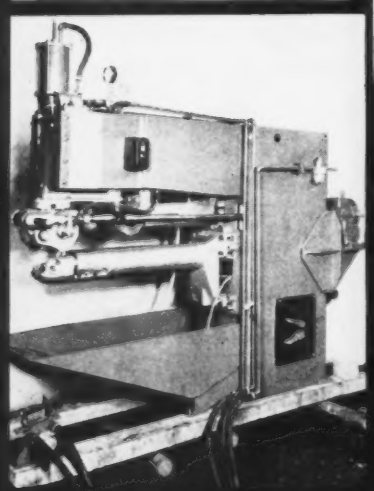

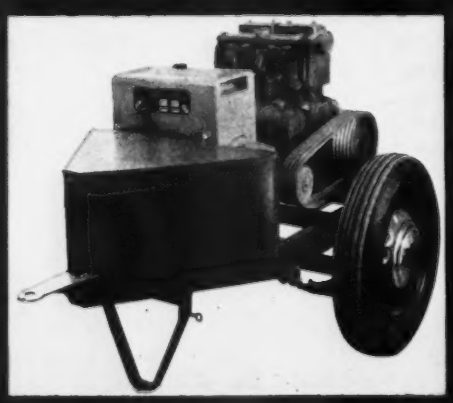

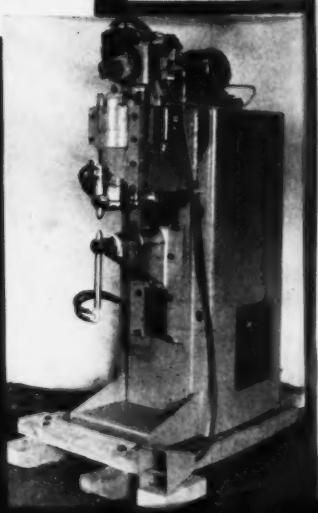

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- **SNAP-IN FILTERS** available for welding and other glares.
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**MODEL 7** *(photo) with clear plastic frame, for general utility. Medium size only.*

**MODEL 8.** *Same, with black opaque side-shields to eliminate annoying side-glare. Medium size only.*

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**MODEL 10.** *Same as Model 8, except with green transparent side shields to reduce side glare. Medium size only.*

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SINCE AFCO 1888

## FORGING OF A CAM ½ LB.

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together with modern and adequate equipment, are offered to the mining, oil, lumber, marine and industrial fields by the American Forge Company specializing in

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FORGINGS have innumerable applications in t industrial, marine, mining, lumber and oil fiel Science and experience have proven that forging i proves metals—makes them tougher, frees them fr flaws and bestows on them many excellent qualit which lessen costs and improve the finished produ

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If you have any metal problem, where forgings c do a better job and even lessen costs, we invite yo inquiry. Write us—our Metallurgical Department w render a report with their suggestions without co or obligation to you.

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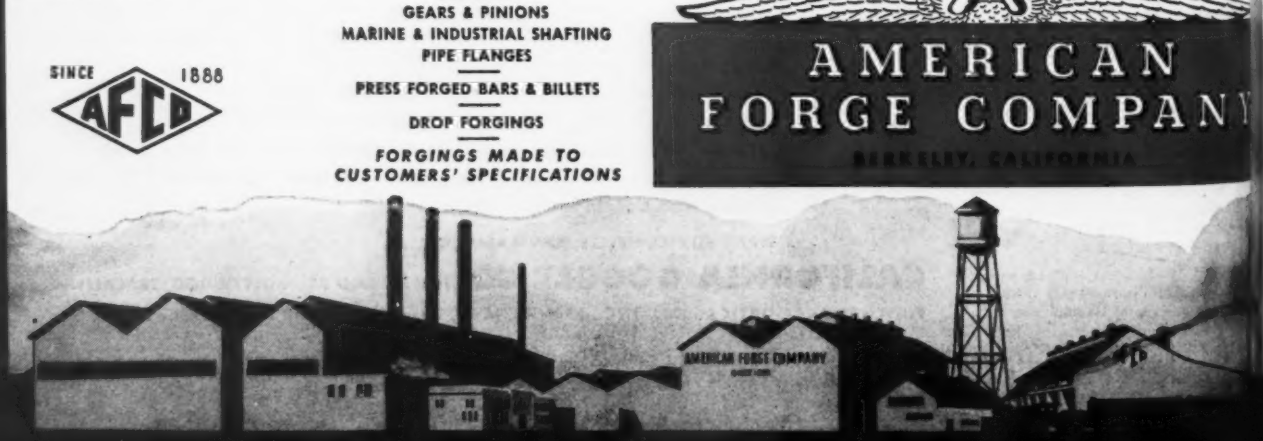

EDITORIAL COMMENT

# WESTERN INDUSTRY

## Postwar Problem No. 1: Orders

MOST of the Western war contractors have had their noses so close to the grindstone that they feel they have not had a chance to even think, much less do anything about their greatest postwar problem of all. That problem is to find orders to replace cancellations and terminations, which may come wtih startling suddenness. All the planning in the world about what they are going to make is likely to go for nought if they have not been equally forehanded in planning sales campaigns, in making preliminary searches for customers. Consequently they will have to make time for sales planning, if they do not want to become ex-manufacturers.

Robert C. Elliott, who writes a daily postwar column for the San Francisco News, brought this out forcibly in a recent talk before the San Francisco Advertising Club, calling attention to what would happen to inexperienced and unprepared Western manufacturers in competition with eastern firms with years of sales training and experience behind them. Unfortunately he was talking to the wrong people; he should have been making his remarks to manufacturers themselves, but they can profitably make up for this loss by listening to all the advertising men and sales counselors who come along.

An interesting incidental point brought out by Mr. Elliot was that Pacific Coast ports have a new manufacturing opportunity ahead of them in processing materials imported from countries in the Far East, just as New York has done with European goods.

## It's a Western Job Alone

AN INTERESTING forecast of the postwar future of the West was given at the Pacific Coast N.A.M. meetings last month by Alfred Eames, regional vice-president of the organization, and it was gratifying to hear him speak of the need of more meetings at which the readjustment problems could be discussed. But to expect that N.A.M. meetings will get us anywhere on the problems of steel, aluminum, freight rates and the like is not logical. Regional matters like these call for regional attention entirely.

Speaking at an N.A.M. meeting, with the national officers of the organization present, Mr. Eames in courtesy had to include N.A.M. gatherings as part of the postwar planning, which they certainly can be in the overall scheme of things. But on the regional questions, regional bodies alone will have to do the discussing and the deciding. Even a regional N.A.M. meeting with no national officials present could hardly be free to encourage plans that might run counter to the ideas of the brothers back East.

Industry in the West will have to put on its own shows, and they can be as constructive as the Carson City meeting of the politicians who make up the Committees on Interstate Cooperation, a meeting that unquestionably was constructive, although the Kaiser-U. S. Steel flareup tended to overshadow the rest of the session.

## Industry at School

INDUSTRY has to go to school all its life, or at least the rank and file of executives who have to keep the wheels turning whether the all-highests bother with the details of the business or not. Two such opportunities to learn are by now well established, the Southern California Management Conference and the Pacific Coast Institute on Industrial Relations. The former is to have a counterpart in the San Francisco Bay area, while the latter is already set up as an all-western proposition. Success to both!

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### OUR COVER PICTURE

**In accordance with the wishes of the government, our cover picture this month features the individual job of every American—to buy war bonds. The scene shows a giant steel shaft, 44 inches in diameter and 77 feet long, connecting a 150-000 h.p. hydro turbine to one of the world's largest electric generators at Grand Coulee Dam, in Washington.**


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503 MARKET STREET, SAN FRANCISCO 5, CALIF.

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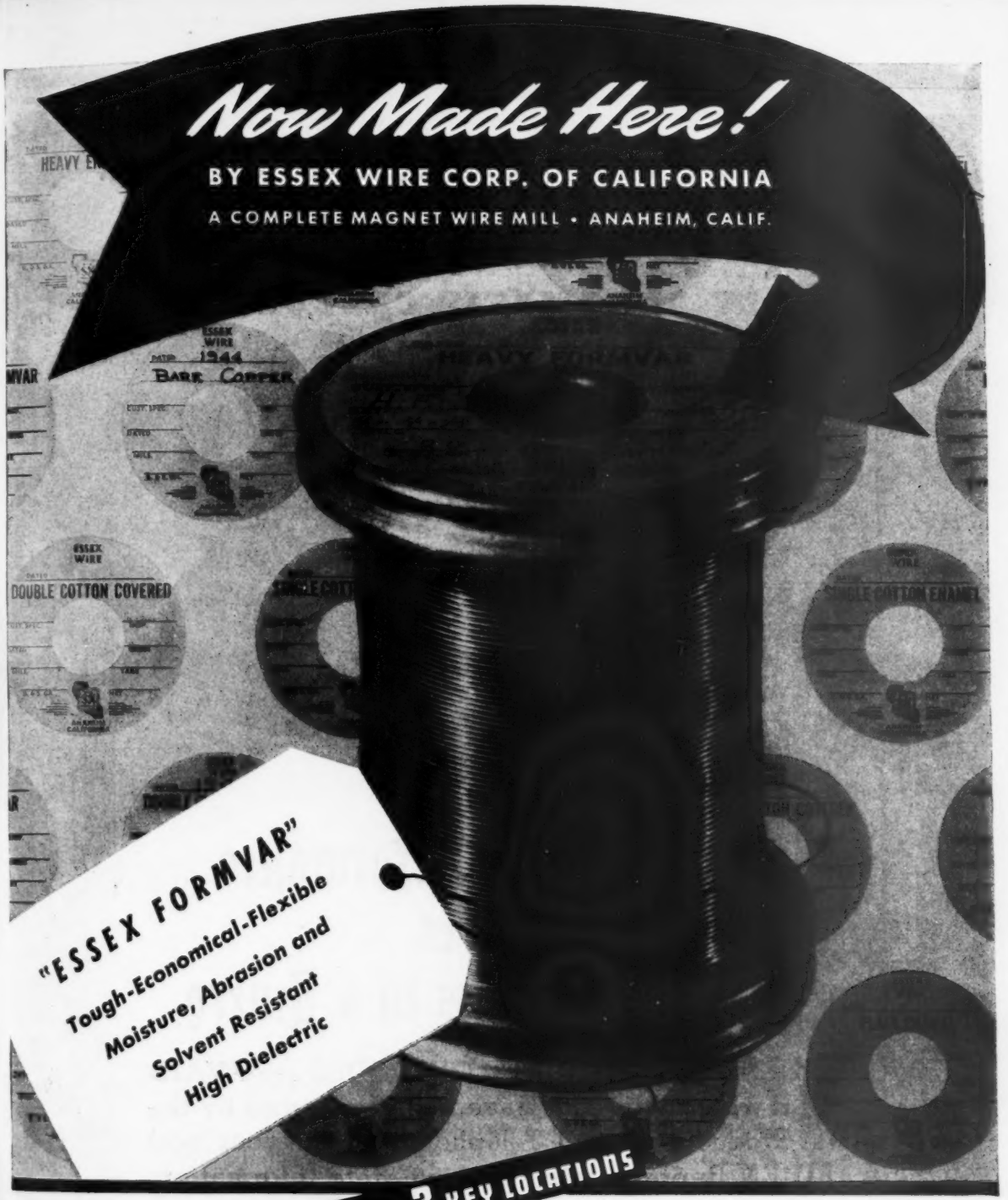


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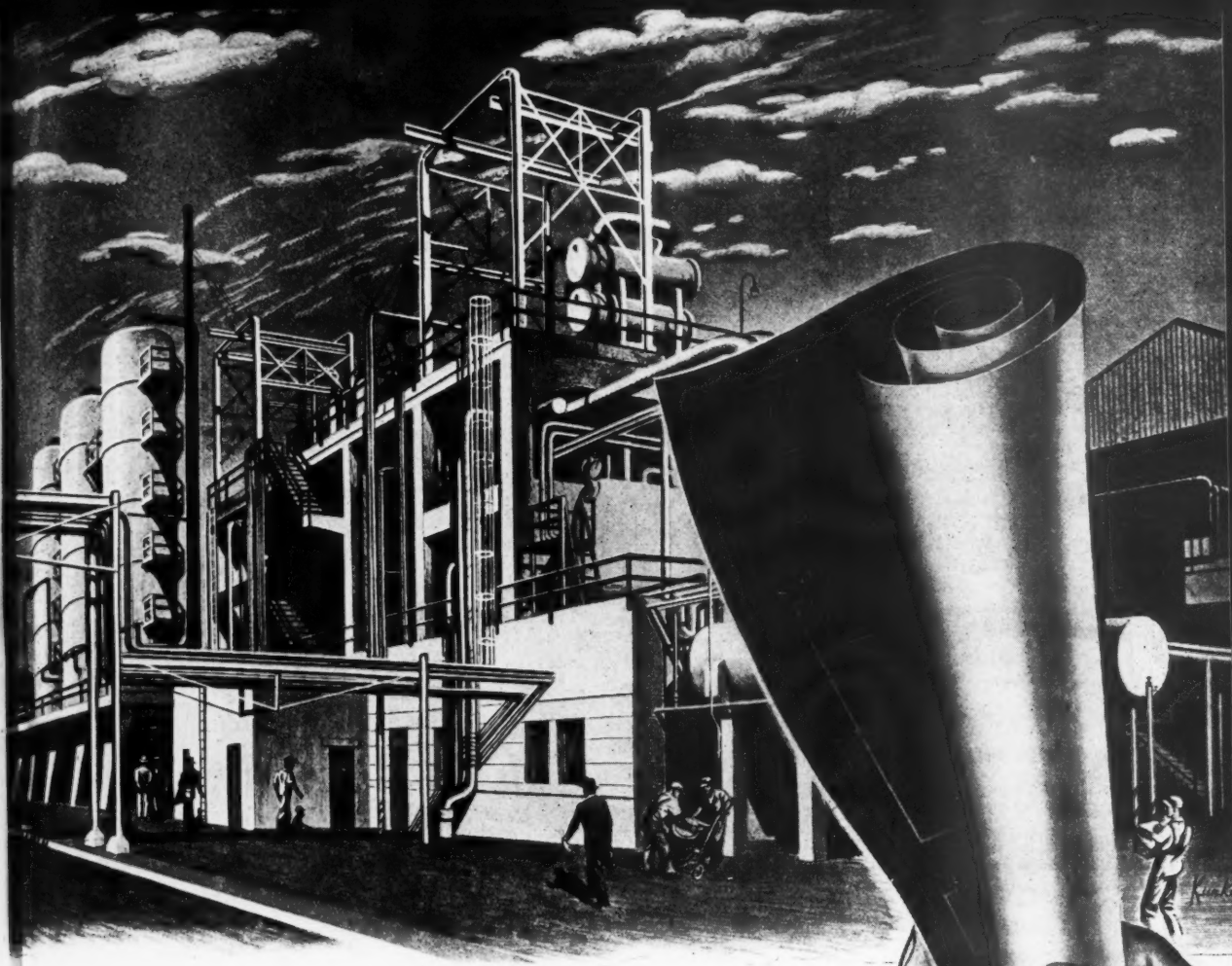

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In the chemical and process industries, Blaw-Knox offers a unique two-fold service. On the one hand, it can provide complete operating units designed, engineered and carried through to operation ... all under one responsibility. On the other, Blaw-Knox fabricates an almost unlimited variety of equipment for: distillation, gas absorption, solvent extraction and recovery, heat transfer, evaporation, crystallization, drying, kilning and calcining, organic synthesis, mixing and stirring, dry blending, high pressure processing, vacuum processing, impregnating, gas cleaning and conditioning, deodorization, etc.

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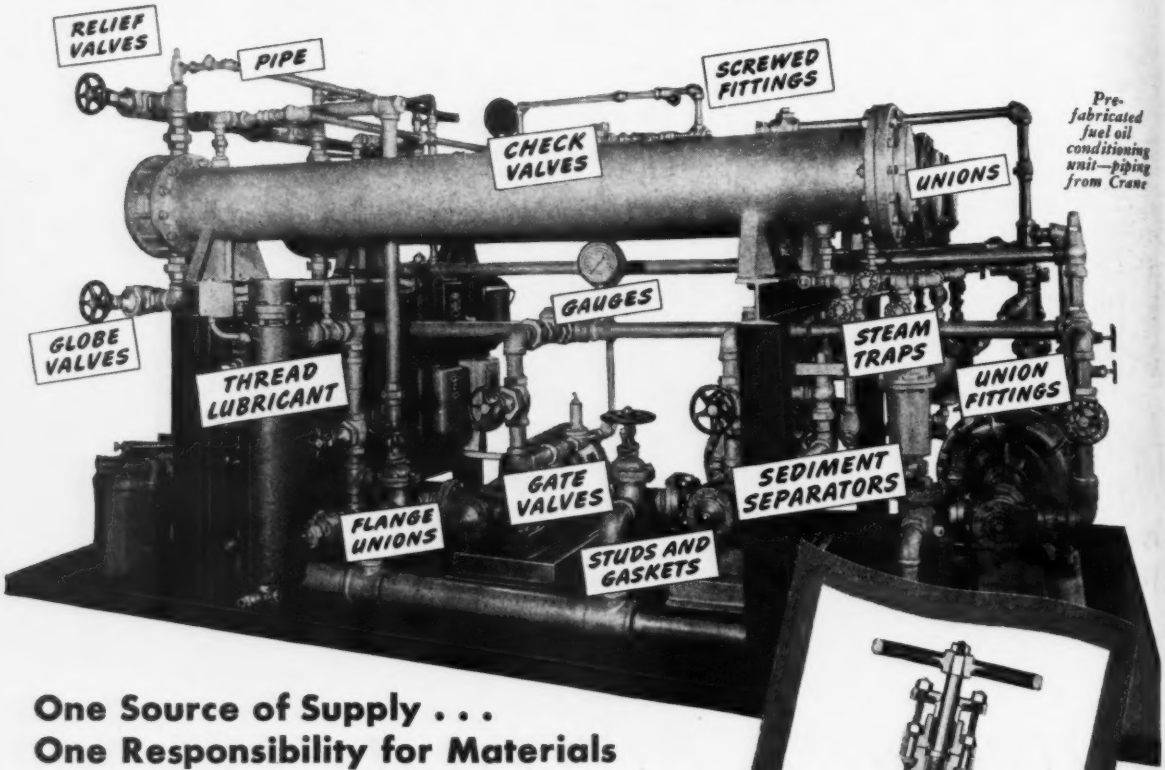


*Pre-fabricated fuel oil conditioning unit—piping from Crane*

## One Source of Supply . . . One Responsibility for Materials

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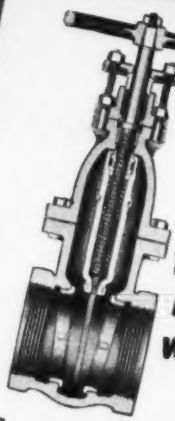
CRANE CO., 836 S. Michigan Ave., Chicago, Ill.



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Because there is adequate quality in every part, the whole system is thoroughly dependable when it's Crane equipped. Such quality is typified by Crane Iron Body Gate Valve design: Strong body sections resist severest line strains. Straight-through ports give streamline flow. A deeper stuffing box lengthens packing life. Extra long guides keep disc travel true, while balanced stem design maintains smooth and positive operation.

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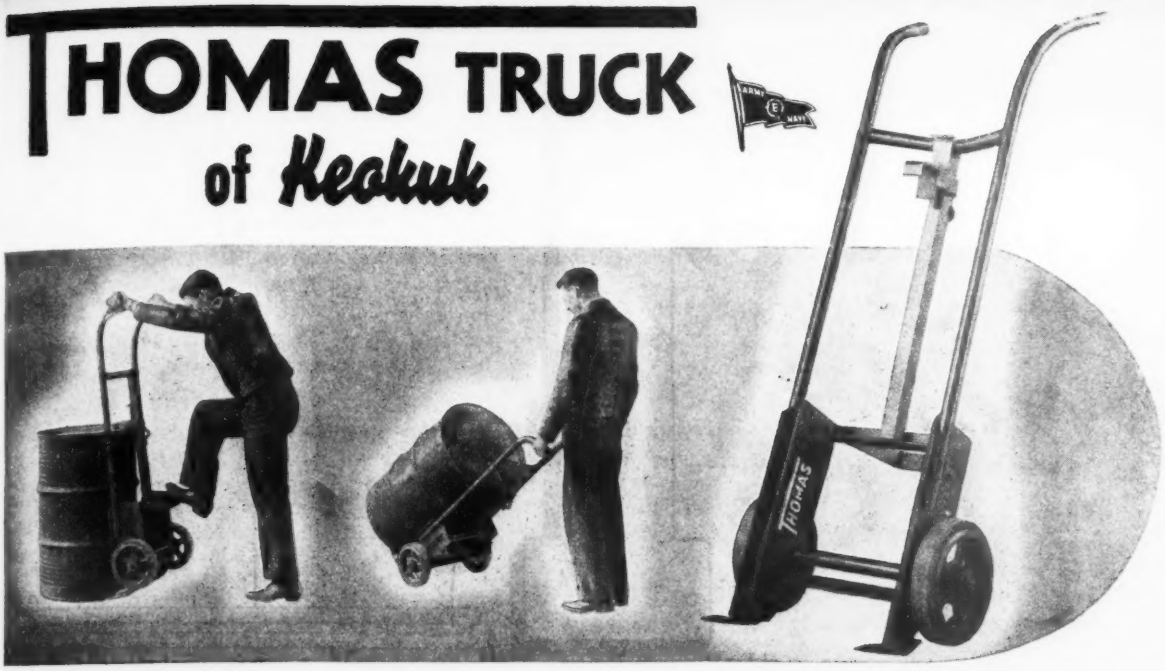


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*Over 1000 different "Job-Suited" superstructures for Thomas 4 wheel trucks illustrated in Thomas new catalog No. 43. A few of them are shown around the border of this page. . . . Write for catalog today.*

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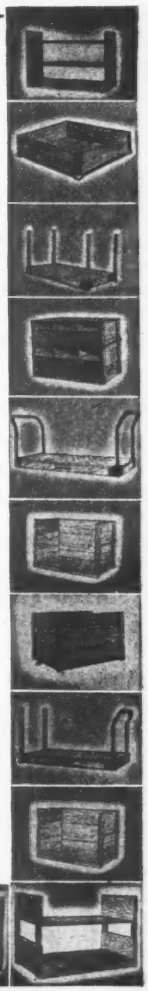

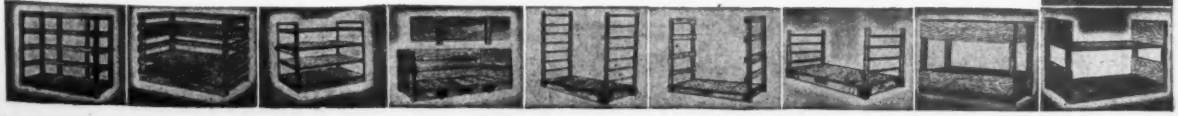

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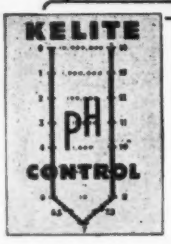


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**INDUSTRIAL CHEMICAL PROCESSES & MATERIALS**

# *Wires* THAT WENT TO WAR

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*It's a job for the Pacemaker!*

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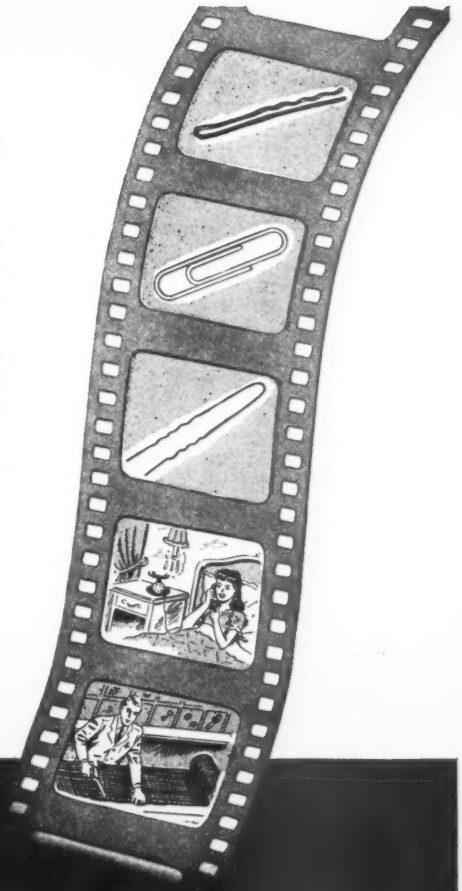
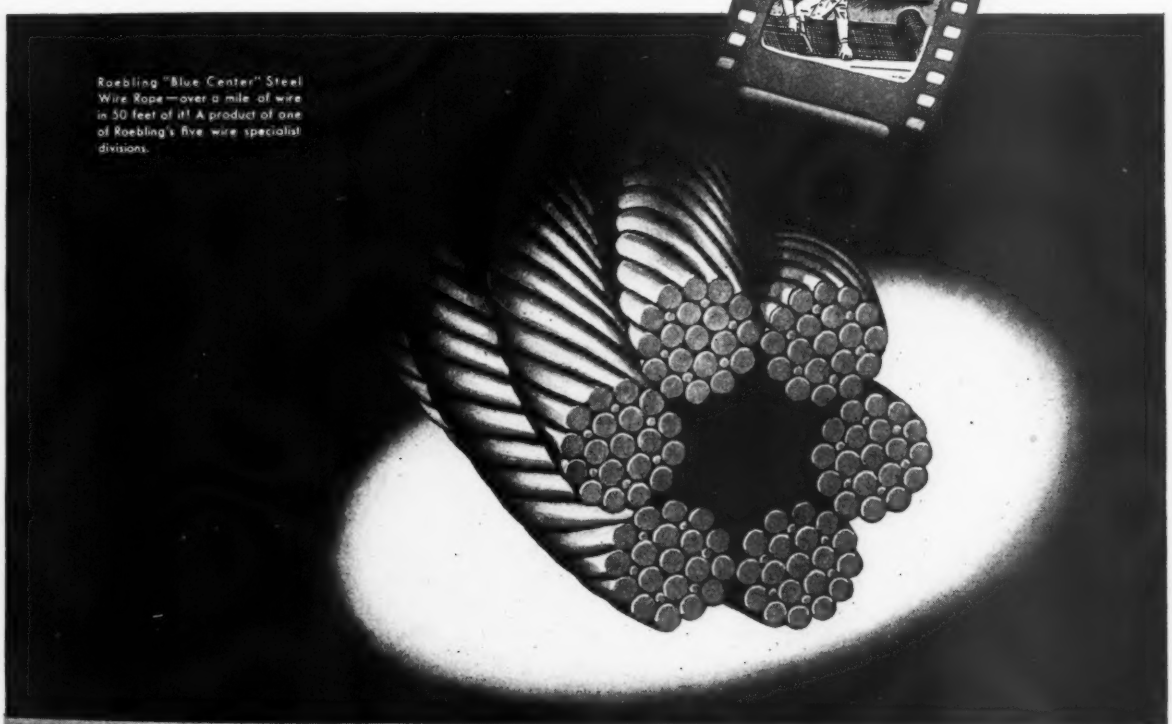


Roebling "Blue Center" Steel Wire Rope—over a mile of wire in 50 feet of it! A product of one of Roebling's five wire specialist divisions.



ROEBLING

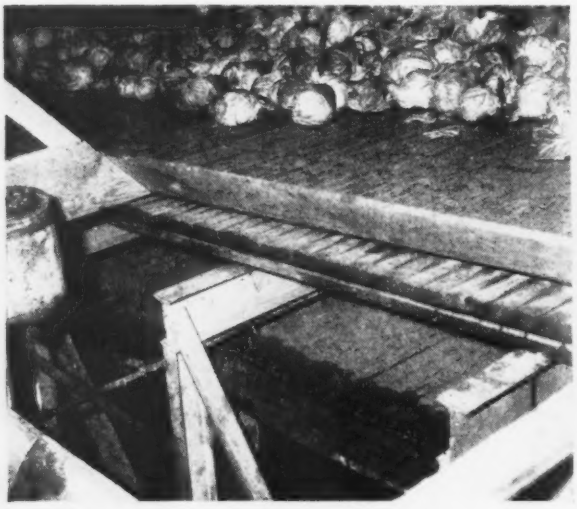
PACEMAKER IN WIRE PRODUCTS

WIRE ROPE AND STRAND • FITTINGS • AERIAL WIRE ROPE SYSTEMS • COLD ROLLED STRIP • ROUND AND SHAPED WIRE
AIRCORD, SWAGED TERMINALS AND ASSEMBLIES • SUSPENSION BRIDGES AND CABLES • ELECTRICAL WIRES AND CABLES
WIRE CLOTH AND NETTING • HIGH AND LOW CARBON ACID AND BASIC OPEN HEARTH STEELS

# 400 TONS ARE A LOT OF VEGETABLES

**① TAKING THE WATER** out of 400 tons of vegetables daily is no small task. Yet that's exactly what they do in a large dehydration plant at Salinas, California. And one of the big reasons for this outstanding performance is the materials handling system, completely equipped with Rex drive and conveyor chain belts.

**② OUT IN THE FIELDS** Rex roller chain belts are used in all driving and conveying functions on this mobile vegetable loader. Moving along 8 to 10 rows of lettuce at a time, the loader discharges the harvested heads into a truck for quick transportation to the plant, considerably reducing harvesting time.



**③ THEN NOTE** this 27-foot wide slat conveyor which handles as much as 8 tons at a time. Mounted on Chabelco chain belts, it takes an entire truckload of vegetables and starts them on their way. Moving at variable speeds of from 4 to 18 feet a minute, its steady operation assures even distribution to the sorting conveyor.

**④ THIS INCLINED SLAT CONVEYOR** elevates carrots from their first washing into a standard lye peeler where skins are removed before moving on to the processing room. The conveyor is mounted on Rex Z-Metal chain belts—Z-Metal, because of its high strength and corrosion-resistant qualities.

* * * *

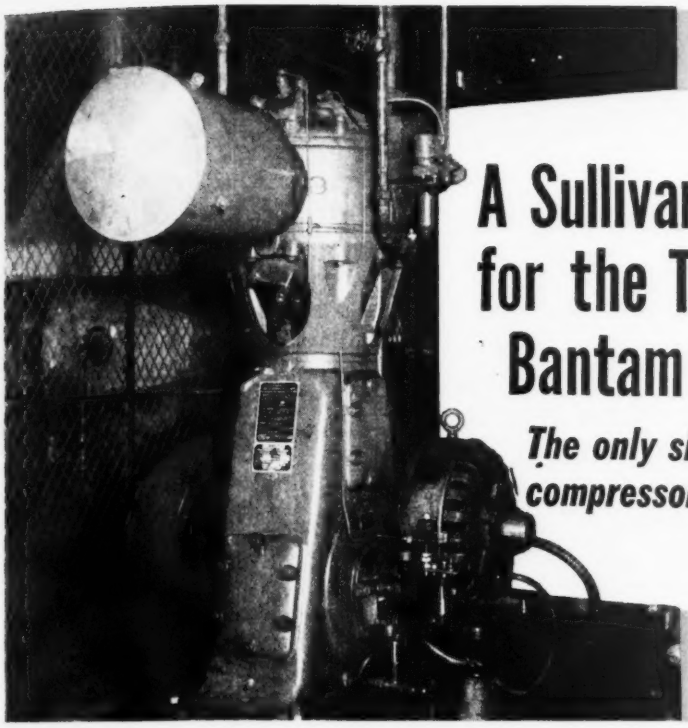
*The REX MAN will be glad to assist you in the proper selection of chain belts in connection with your food handling problems. For complete information, call him or write to Chain Belt Company, 1723 West Bruce Street, Milwaukee, Wisconsin.*

**REX CHAIN BELTS**

**More than 2000 sizes and types for the positive transmission of power, timing of operations and conveying of materials.**

**CHAIN BELT COMPANY OF MILWAUKEE**

*Rex Chain Belt and Transmission Division, Rex Conveying and Engineering Products Division, Milwaukee 4, Wis.· Baldwin-Duckworth Chain Belt Division, Springfield 2, Mass.: Worcester 3, Mass.*



# A Sullivan WG-9 Compressor for the Torrington Company Bantam Bearings Division

## *The only single-stage, double-acting compressor with these 4 advantages*

The Torrington Company, Bantam Bearings Division, already had a Sullivan WG-8 Compressor. Thus they *knew* Sullivan dependability; so when they needed more air, they bought its successor, the Sullivan WG-9. Behind its outstanding performance are features such as the following:

1. Single-purpose alloy steels are *used for single purposes.* Thus in moving parts, Sullivan uses the alloy steels known to resist wear to the utmost. In connecting rods, Sullivan uses the alloys with the utmost ruggedness . . . and drop forged. Again, it has been known for many years that modern single-acting cylinders with honed liners and tinned pistons are almost devoid of wear. That is the construction employed in the WG-9.

2. And to pile value on top of value, cylinder and crosshead liners can be replaced easily, quickly. cheaply . . . to bring back new machine efficiency when actually the compressor is old.

3. The famed Sullivan Dual-Cushion Variable Reaction Valves . . . used in every Sullivan Compressor and proved by hundreds of thousands of hours of faultless performance.

4. The WG-9 Compressor offers maximum capacity per foot of floor area. It has full force-feed lubrication to all working parts—and heavy-duty anti-friction main bearings.

The Sullivan WG-9 Industrial-Air is a heavy-duty compressor for 24 hour service in smaller industries or specialized requirements in larger plants. It is available in 11 capacities, from 153 to 822 CFM, at 30 to 150 lbs. pressure . . . SULLIVAN MACHINERY COMPANY, Michigan City, Indiana. In Canada: Canadian Sullivan Machinery Co., Ltd., Dundas, Ontario.

### *4 THINGS TO MAKE SURE OF WHEN YOU BUY AN AIR COMPRESSOR*

**1** *Are moving parts made of longest-life material available . . . and not a compromise?* Note for example, WG-9's generous size crossheads, tin plated and running in mirror-finish honed liners of tough alloy steel . . . almost obviating wear

**2** *After long service, can working parts be easily replaced by you in your plant, bringing back "New Machine Efficiency?"* The special alloy steel liners in the WG-9 can be thus renewed.

**3** Are soundest basic engineering concepts followed? How does the valve operate? What about air passages? What is the *truth* about flywheel and pulley wheel combined?

**4** Is overall design simple, accessible yet built to eliminate the usual adjustment and readjustment so common with compressors? All users agree that Sullivan Compressors never need "break-in" adjustments and give least trouble of any.

**OFFICES**

| | | | | |
|---|---|---|---|---|
| Seattle | Portland | San Francisco | Los Angeles | Salt Lake City |
| Boston | Pittsburgh | Birmingham | Duluth | Scranton |
| New York | St. Louis | Knoxville | El Paso | Denver |
| Chicago | Detroit | Huntington | Butte | Dallas |

# SULLIVAN

## AIR COMPRESSORS

STATIONARY AND PORTABLE AIR COMPRESSORS FROM ¼ TO 3000 H. P., PNEUMATIC CASTING GRIPS, FOUNDATION BREAKERS, PORTABLE HOISTS, ROCK DRILLS

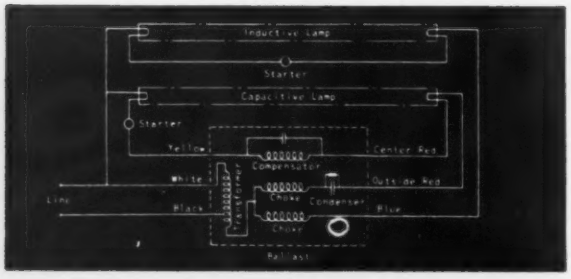
**No. 4** in a series published by SYLVANIA for all users of fluorescent lighting

# *Fluorescent* operating hints

## BALLASTS

The ballast is a current-limiting device essential to the operation of fluorescent lamps. Without a ballast, the current would rise instantly to a value that would destroy the fluorescent lamp, which is an electrical arc-discharge source.

The ballast consists of an iron-core choke coil and condenser elements embedded in insulating compound. Only the wires necessary for connections with the external circuit are visible. The diagram below shows the internal elements of a ballast and the hook-up in a typical two-lamp circuit.




Ballasts also provide for power-factor correction. A high power factor is essential to lighting efficiency. The table below shows the wattage consumed by both the single and two-lamp types of ballasts.

**BALLASTS FOR FLUORESCENT LAMPS**

| Lamp Size | Line Volts | Approximate Wattage Loss | |
|---|---|---|---|
| | | Single Lamp Type | Two-Lamp* Type |
| 6 | 110-125 | 2 | — |
| 8 | 110-125 | 2.8 | — |
| 15 | 110-125 | 4½ | 9 |
| 20 | 110-125 | 4½ | 9 |
| 30 | 110-125<br>199-216<br>220-250 | 10<br>9<br>9 | 14½<br>12<br>12½ |
| 40 | 110-125<br>199-216<br>220-250 | 13<br>12<br>13 | 17½<br>13½<br>14½ |
| 65 | 110-125 | 12 | 24 |
| 100 | 110-125<br>199-216<br>220-250 | 24<br>24<br>24 | 35<br>35<br>35 |

*Wattage loss is for both lamps.

## BALLAST SERVICING

Properly designed and installed ballasts last indefinitely under favorable conditions. That is why the ballast is the last thing to check when lamps fail to light. When you are sure that starter and lamp are not at fault, test the ballast by hooking up a bell ringer in series with the coils. If bell fails to ring, you know that ballast is defective.

***Don't Try to Repair a Bad Ballast.*** Replace it with a new one. Then there will be no risk to your investment in fluorescent equipment.

A hum that grows in severity is a sure sign of impending ballast trouble.

Improper ballast equipment can cause lamps to blink with a definite "on" and "off" period and thereby shorten lamp life. Be sure to use the right ballast replacement, as specified by the manufacturer of your particular fixtures.

## THE BALLASTS ARE RIGHT IN SYLVANIA "PACKAGES OF LIGHT"

Sylvania sells industrial and commercial fixtures complete with lamps, ballasts, sockets, starters — wired and ready for immediate installation. The ballasts in every Sylvania fixture are made to the same high quality standards as Sylvania lamps, starters, reflectors and sockets.

*For Additional Maintenance Information*
**Send For This Free Booklet**

**SYLVANIA ELECTRIC PRODUCTS INC.**

*"Fluorescent at its Finest"*

595 So. Flower St. Los Angeles 13, Calif. | 111 Sutter St. San Francisco, Calif. | 468 White-Henry-Stewart Bldg. Seattle 1, Wash.

FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

***JUST ONE OF THE BAR RACKS IN ONE OF JORGENSEN'S WAREHOUSES***

Many such racks are required to hold the thousands of different items that comprise Jorgensen's bar stocks—one of the most complete in the steel warehousing industry—consisting of carbon, alloy and stainless steels in a wide assortment of analyses, conditions, shapes, finishes, etc.

For example — take just one diameter and one shape — say a 1" round.

Jorgensen's stocks include **forty different kinds** of 1" round bars!

And that's just **one** diameter—Jorgensen's stocks include **dozens** of diameters, ranging from 1/16" wirelike bars, weighing a fraction of an ounce per foot, to huge 16" diameter forged (pressed) bars, weighing over seven hundred pounds per foot. And that's only the **round** bars—stocks also include hexagons, octagons, squares and flats in thousands — but that's a long story!

The point is, Jorgensen's stocks are not limited to the fast-moving items—Jorgensen can supply the **right** bar for your particular application. For steel bars, as for other steel products, you'll find it to your advantage to CALL JORGENSEN FIRST!

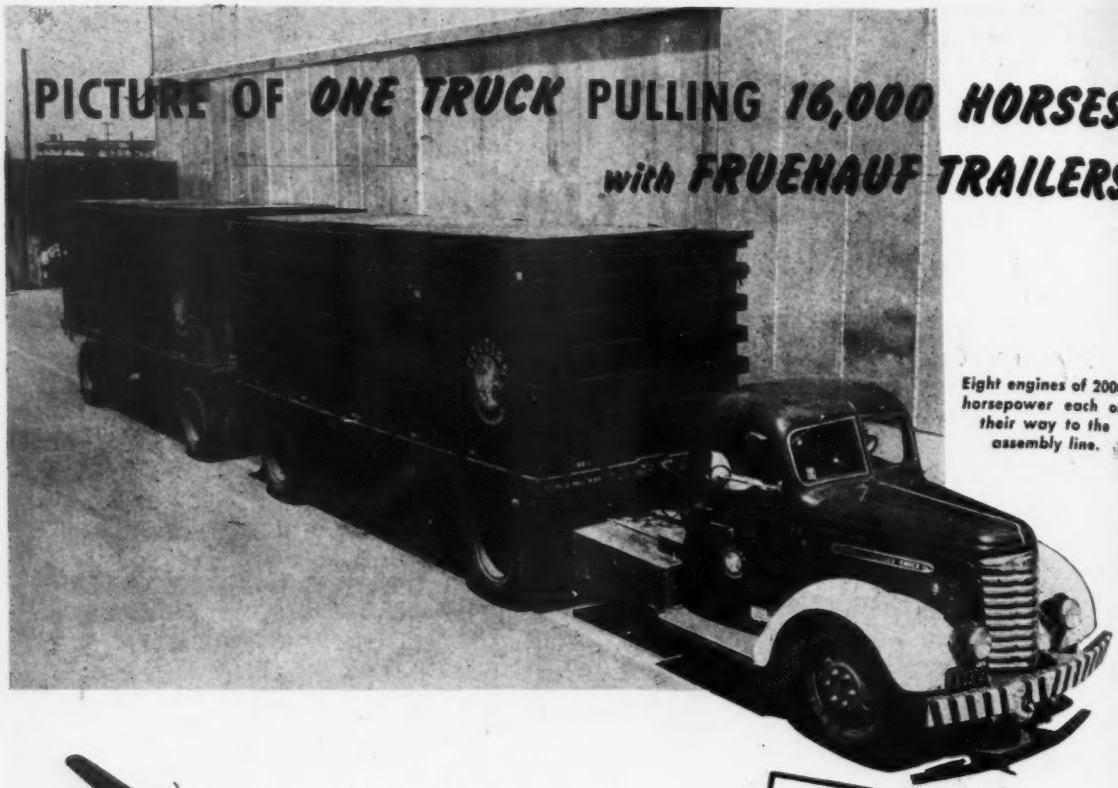
## EARLE M. JORGENSEN CO.

**STEEL**

**LOS ANGELES** **SAN FRANCISCO** **OAKLAND** **HOUSTON**

AIRCRAFT ALLOY STEELS COMMERCIAL ALLOY STEELS MILD STEEL STAINLESS STEELS ABRASIVE-RESISTING STEELS COLD-FINISHED STEELS
MAYARI R HIGH-TENSILE STEELS CARBON STEELS TOOL STEELS MINING DRILL STEELS BARS BILLETS PLATES SHEETS STRUCTURALS

# PICTURE OF *ONE TRUCK* PULLING *16,000 HORSES* *with* *FRUEHAUF TRAILERS*



*Eight engines of 2000 horsepower each on their way to the assembly line.*

## AT DOUGLAS AIRCRAFT

it takes 1000 motor vehicles to keep things on the move . . . everything from a half-ton pickup truck to Truck-Trailer combinations like this one loaded with crated airplane engines . . . with capacities up to 75,000 pounds gross weight. At Douglas a fleet of Fruehauf Truck-Trailers maintains an immense flow of materials to the line. These Trailers haul engines, subassemblies and master jigs . . . everything from pretzels to a complete Havoc plane.

In the aircraft plants . . . on the highways . . . nothing else can replace the fast and flexible operation of Truck-Trailers when it comes to hauling tremendous quantities of "hot stuff" . . . and it's practically all hot stuff, these days. Remember, too, that the time you save and the effort you multiply with Truck-Trailers mean more American lives saved.

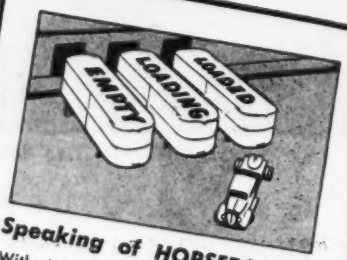
***World's Largest Builders of Truck-Trailers***

## FRUEHAUF TRAILER COMPANY

***Western Manufacturing Plant — Los Angeles***

***Sales and Service Branches:***

| | | |
|---|---|---|
| Fresno | Salt Lake City | Los Angeles |
| San Francisco | San Diego | Denver |
| Seattle | Phoenix | Portland |
| | | Spokane |




### *Speaking of* HORSEPOWER

With "shuttle" operations of Trailers, one truck can do the work of two or three . . . by hauling one Trailer while another is being loaded, often with a third being unloaded.

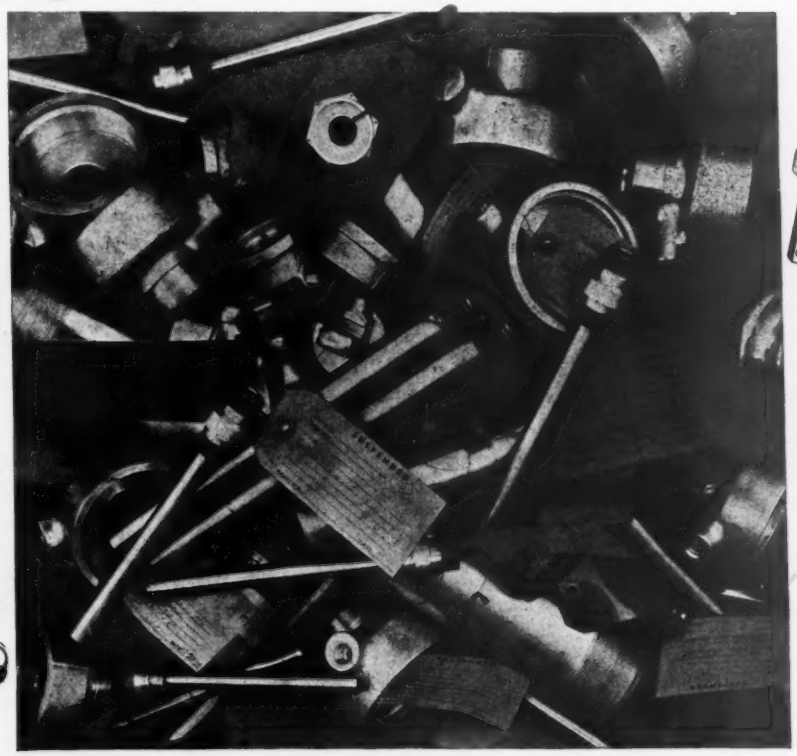
### *Speaking of* MANPOWER

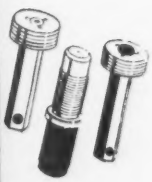
Save manpower by converting trucks to Truck-Trailers. Train new drivers by use of Fruehauf's Driver Training Sound Slide-films, obtainable thru your Fruehauf Branch.

ENGINEERED TRANSPORTATION

# FRUEHAUF TRAILERS

# IT'S "NO GO!"





# And Countless Lives are Saved

Because inspectors stand on guard in America's war plants, ready to say "NO GO" after gauging each vital part, countless lives of our fighting men are saved. In the heat of battle our tanks, planes, ships and machines must perform. America is proud of the skill and precision that goes into every assembled part. Judging that precision—in the hands of inspectors—is the important role of Kobe gages. It is on the most minute accuracy of these gages that ultimate Victory depends. Kobe gage quality did not come into being overnight. It is the product of years of research . . . of the sweat of skilled workmen . . . of careful selection of materials . . . of the latest precision equipment and finest manufacturing facilities. THESE are the ingredients which today make Kobe gages synonymous with *quality*. With its gage division now greatly expanded and entirely mobilized for war, Kobe is constantly testing, re-testing, working for improvement. Out of this development, born of wartime demands, will come new standards of perfection, newer, finer tools which in peacetime will once again be available. Right now, Kobe gages have a big job to do. And they are doing it—RIGHT—on hundreds of vital manufacturing jobs. Kobe gage quality and the inspector's "GO" and "NO GO" combine to make American equipment the finest in the world today. So, today, Kobe's gages are helping to win the war. Tomorrow they will be available to help build the products of peace. But always, the goal of Kobe is *quality*.

KOBE

*Master and Reference* GAGES

**KOBE, INCORPORATED**
**3040 East Slauson Avenue • Huntington Park, California**

# . . . . DESIGNED AND BUILT TO MEET YOUR DEMANDS

Photo of a sextuple-width Silverlink roller chain drive from steam engine counter shaft to chucking spindle of peeler lathe in plant of Harbor Plywood Corp., Hoquiam, Washington. To right is a Silverlink drive to chucking screw for adjusting the two chucks and gripping the two ends of the log firmly.

**YOU** demand, in roller chain, strength, light weight and stamina to withstand shock loads. LINK-BELT'S strict standards of material and production methods coupled with exclusive design features, assure exceptional strength-to-weight ratio, and uniformly high efficiency. The exclusive curled roller cushions any shock and greatly lengthens the life of the chain.

**YOU** require low first cost and low upkeep. Skilled engineering applied to the design and manufacture of Silverlink Roller Chain assures economy in both installation and operation.

**YOU** require positive, efficient power transmission and smooth, flexible, economical operation of conveying equipment . . . LINK-BELT Silverlink ROLLER CHAIN, with its sound basic design, all-steel construction and precision manufacture, meets your needs completely!

**YOU** can profit through the broad experience of LINK-BELT chain engineers—let them help you bring your drives and conveyors to peak efficiency. Write for Roller Chain Engineering Data Book No. 1957.

**LINK-BELT COMPANY,** *Pacific Division*

General Office and Plant: San Francisco (24) 400 Paul Ave.
Factory Branch Offices and Warehouses:
Los Angeles 33, 361 S. Anderson St. — Oakland 7, 526 3rd St. — Seattle 4, 820 First Ave., S.
Spokane 8, South 151 Lincoln St. — Portland 9, 1637 N. W. 14th Ave.

9495-P

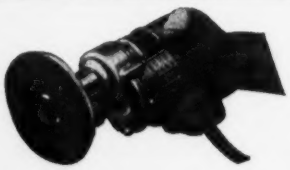
LINK-BELT — THE SYMBOL OF QUALITY — LINK-BELT COMPANY

*Silverlink Roller Chain*

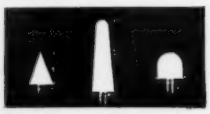
# EXTRA JOBS

## *Done Quick and Easy!*

**These Accessories Make Any Electric Drill Adaptable for Many New, Different Jobs**

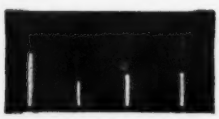


This Thor Sander Attachment can be used effectively on Thor Drills with emery papers 4" in diameter for both wood and light metal sanding. Its small size provides complete control and eliminates jumping around of the wheel.



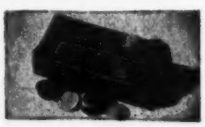
**MOUNTED ABRASIVE WHEELS AND POINTS**

Use them for countless grinding finishing jobs on production and repair work, and in tool, die and machine shops.



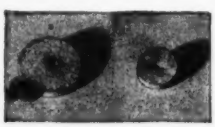
**ROTARY FILES**

Cannot be surpassed for fast, accurate, keen cutting and long life on scores of metal-removing jobs



**SANDING DISCS**

All kinds of shops and plants find many uses for these discs for both wood and light metal sanding operations.



**POLISHING WHEELS**

Light polishing work goes faster with these wheels, which get into the smallest recesses ...turn out more work, better

**HOLE SAWS**

Cut clean holes in a hurry in wood, steel, brass, cast iron, marble, etc. Widely used in repair and maintenance work.

**WIRE BRUSHES**

Quickly remove carbon deposits, burrs, paint, rust and the like. Nearly every shop and plant finds many a use for them.

**Genuine Thor Accessories FOR BEST RESULTS**

## WITH *Thor* ACCESSORIES FOR PORTABLE ELECTRIC DRILLS

### GET MORE FROM YOUR TOOLS AND DO DOZENS OF JOBS FASTER

By use of sanding discs, mounted abrasive wheels and points, rotary files, hole saws and other Thor accessories, specially designed and processed for use with electric drills—of *all* types and makes—you can make your tools adaptable to dozens of different jobs of grinding, sanding, polishing, cutting, filing, sawing and cleaning. You'll get new speed and better work with *genuine* quality Thor accessories used with electric drills.

### *A SIZE AND STYLE FOR EVERY JOB!*

In the complete line of Thor accessories for portable electric drills there is a wide range of sizes and styles of each accessory. No matter what your requirements in mounted abrasive wheels and points, rotary files, sanding or polishing discs, wire wheel brushes, hole saws and disc saws, Thor can meet your needs for size, shape and style. And *every* Thor accessory is *engineered to its work*... specifically designed and selected for use with electric tools... to assure you *best* results in making your tools adaptable for many different jobs.

*Don't take chances*... don't waste time and money with uncertain, unadapted accessories—use *genuine* Thor accessories and be sure! For full information, specifications and prices write for Thor Catalog No. 38.

*Stocked and Sold by Leading* **DISTRIBUTORS EVERYWHERE!**

Thor accessories for electric tools are sold by leading mill supply, electrical, automotive, plumbing and hardware distributors, to give quick, convenient, reliable service. Write for name of your nearest distributor.

**INSIST ON GENUINE THOR ACCESSORIES**

*Thor Portable Electric Tools*

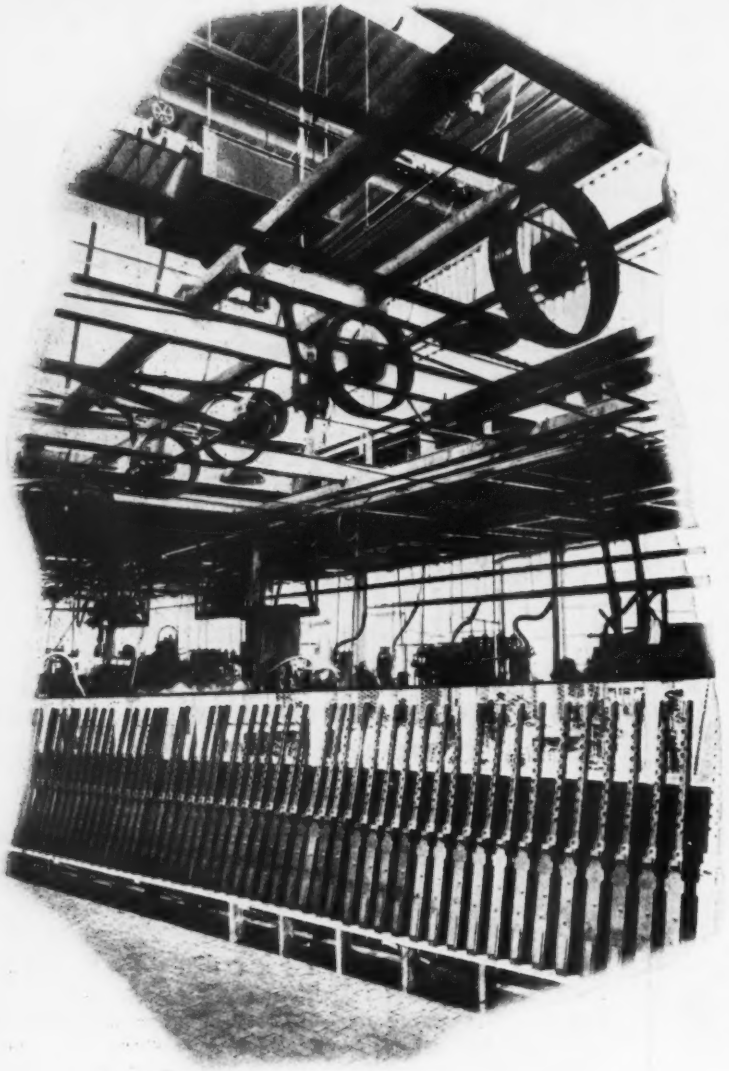
**INDEPENDENT PNEUMATIC TOOL COMPANY**

600 W. JACKSON BOULEVARD, CHICAGO, ILL.

*Branches in Principal Cities*

6200 E. Slauson Ave., Los Angeles, Calif.
315 S. Van Ness St., San Francisco, Calif.
1741 First Ave., S., Seattle, Wash.
54 E. Fourth, South, Salt Lake City, Utah

# Short Cut To Stingers For Uncle Sam's Wasps



**Bullets come out of them like water out of a fire hose—800 a minute. They're 50 Caliber Browning Basic Machine Guns for fighting planes . . .**

But their manufacturer faced a delay in production. He had planned individual motor drives on his machines, but he couldn't corral enough motors. And if he got them, installation-time loomed ahead as another delay.

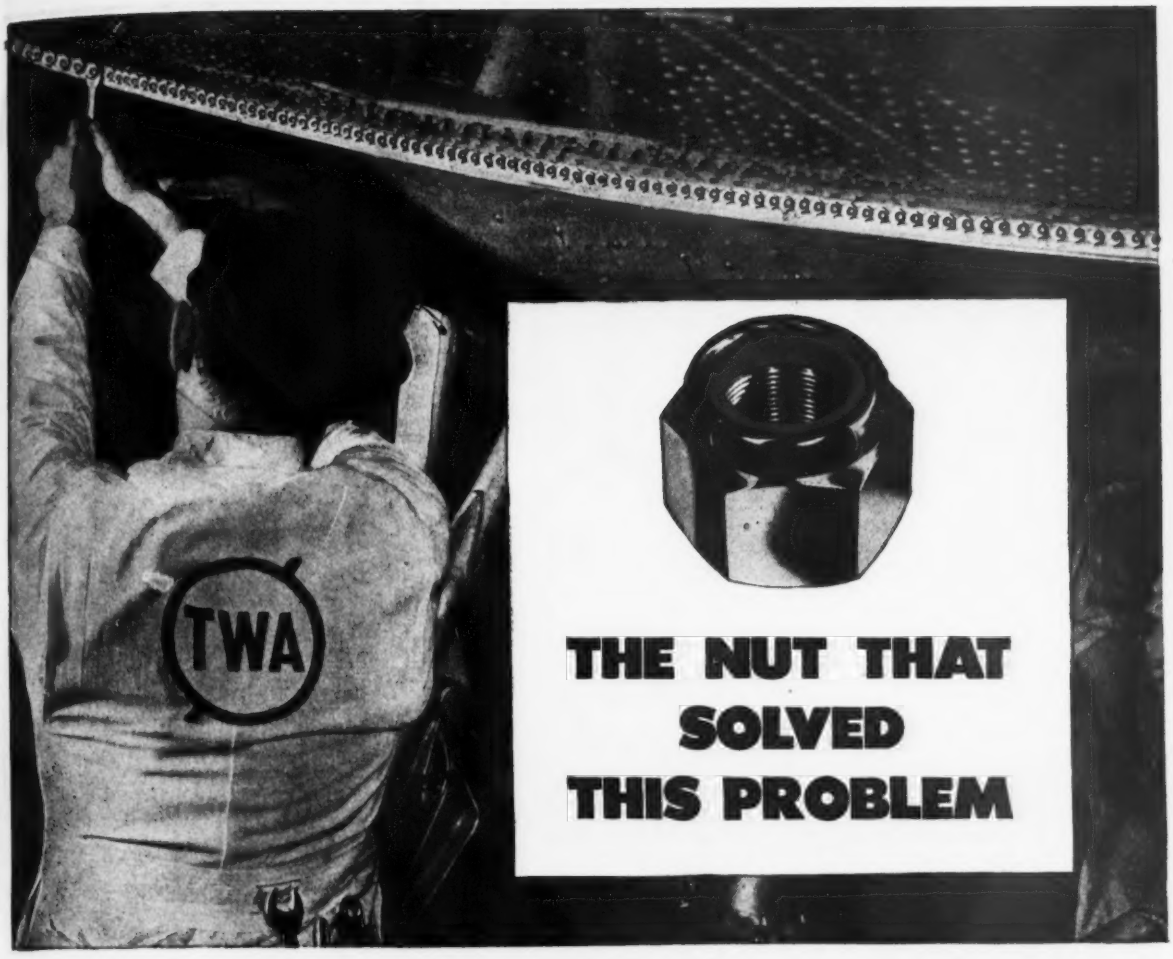
Group drives from lineshafting were the natural solution. And the natural choice for mounting them . . . Fafnir Double Ball Bearing Hanger Boxes from the nearby Fafnir distributor. Fafnirs because they're easiest to install; locked to stock shafts with a simple finger-twist of the Self-Locking Collar. Fafnirs because they pack extra radial and thrust load capacity into their Balanced Design; deeper races, larger balls.

Thus installed, these lineshafts were ready to run "for the duration"; carry maximum power from motor to machine 24 hours a day, with occasional greasings the only attention needed.

Many a manufacturer is taking this same road today, at the "Turning Point of increased production". And many have reason to be glad the turning point is behind them . . . the Fafnirs already spinning friction-free in their plants. The Fafnir Bearing Company, New Britain, Conn. Los Angeles, San Francisco, Seattle.

"TURNING POINT OF INCREASED PRODUCTION"

FAFNIR
BALL BEARINGS




## How to Make Each of 328 Fastenings Carry an Equal Share of the Load

Each wing of a DC-3 transport plane is fastened on with 328 nuts and bolts.

Unless the stress and strain are distributed equally, some of the bolts shear off.

The answer was found in Elastic Stop Nuts. These nuts can be given precisely the right tension —then lock fast.

This is one of the important structural fastening jobs which Elastic Stop Nuts have solved.

We've been told Elastic Stop Nuts, by solving many such structural fastening problems, have revolutionized aircraft construction.

These nuts lock fast—are safe. They stay tight and secure even in the face of unusual vibration. That's why they are approved for fastening such vital parts of an airplane's structure.

It's the elastic collar that does the trick. It molds itself to the bolt threads and grips them tight. The nut can't jiggle loose.

After the war ESNA nuts with the red collar will be ready to do the hard jobs of peacetime production.

Any fastening problem you anticipate will be welcomed by our engineers. They are ready to help you solve it and recommend the proper Elastic Stop Nut.

LOCKED ON THE BOLT BY THE ACTION OF THE GRIPPING RED COLLAR.
THE COLLAR IS ELASTIC, THE NUT CAN BE USED TIME AND TIME AGAIN.
MADE IN ALL SIZES AND TYPES—WITH THREADS TO FIT ANY STANDARD TYPES OF BOLTS.
ESNA
TRADE MARK OF
ELASTIC STOP NUT CORPORATION OF AMERICA
ELASTIC STOP NUTS
Lock fast to make things last
UNION, NEW JERSEY AND LINCOLN, NEBRASKA

"FAIRBANKS-MORSE SCALES—ARBITERS OF BUSINESS"

# The Decision Is Final!

Since 1830—Fairbanks-Morse Scales have been rendering split-second decisions recognized as *fair* and *absolute* by buyers and sellers alike.

They are accurate, reliable, honest weighing decisions that have exerted a profound influence on the progress of industries and the welfare of nations.

The accuracy and long life built into Fairbanks-Morse Scales can give you added protection—distinct *plus values* wherever fast—accurate—efficient weighing is essential.

They are tangible *values* developed and pioneered by a company that places no ceiling on whatever it takes to make the finest scales possible to produce.

Fairbanks, Morse & Co., 216 Fairbanks-Morse Building, Chicago 5, Illinois.

BUY WAR BONDS

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
WATER SYSTEMS
SCALES
STOKERS
FARM EQUIPMENT
RAILROAD EQUIPMENT

Scales

# Spotlight on the NEWS

WESTERN INDUSTRY
FOR JUNE, 1944

VOLUME IX NUMBER 6

### Seeds of New Industry

Plastics, artillery shells, glued laminated wood . . . what things can you find less like each other than these? Yet they are individual signs of future diversified industry in the West. Only three issues ago the lack of raw materials for plastics out here was being bemoaned in *Western Industry* by a plastics man, yet Weyerhaeuser is now announcing production of a new molding compound at Longview (page 32).

### Sproutings in Steel

Artillery shells are to be forged and roughly machined at the Kaiser steel mill at Fontana (page 32), then shipped to the Denver ordnance plant for final machining. An emergency operation . . . yet a forecast of many types of steel manufacturing that may center around both the Fontana and Geneva steel mills.

### Lumber to Be Different

Hoarse shouts of "timber," as a giant of the forest crashes to earth, may be heard no more, in view of the developments in glued-up lamination (p. 33). Instead, the lumber industry may deal in a combination of small boards and gluepot, providing heavy industry a stronger and more versatile product that ordinary lumber; also doing a forest conservation job.

### Donald Nelson Coming West

*Western Industry* desires to take a bow for getting an answer out of Donald Nelson as to when he was coming out to the Pacific Coast (p. 32). Nothing definite about his trip until we asked him.

### Moving from Here to There

If there is one matter that all industries have in common, it is that problem of getting things from here to there. E. H. Spiegl learned how conveying equipment could enable him to prepare a carload of lettuce in 20 minutes and then applied it to dehydration (pages 37, 38), opening up new possibilities for volume production in dehydrated vegetables, which in turn may effect important changes in frozen foods.

### Another Basic Industry

Add synthetic rubber to the list of basic industries in the West. Completion of the new project in southern California (pages 27-31) which will supply one-eighth of all the synthetic rubber in the country, not only anchors more firmly the tire factories built in that area before the war but also ties in with high-octane gasoline production and provides an important source of materials for plastics.

### Target Found at Last

The National Association of Manufacturers is at last waking up to the fact that spending its time selling its own members on the value of free enterprise is rather silly. At last its leaders are going out to sell the idea to labor (p. 34), and Los Angeles was made the guinea pig. If they had started 10 years ago, that alliance of the New Deal with labor wouldn't have been half so formidable. Hope the move is not too little and too late.

### What You Can Cash In For

What you will get in renegotiations and termination proceedings depends in considerable measure on how you have figured depreciation on your war plant (p. 54). Many war contractors are failing to present them properly. There are also a lot of post-war property accounting problems ahead, enumerated in this article.

### A Fast Growing Infant

Believe it or not, California's electronics industry has today a greater output than the entire national radio industry before the war (p. 33).

### A Situation to Watch

Slowly, rather inconspicuously, but surely, the Army Engineers are getting control of all rivers and streams, big and little. Doesn't sound important to most people, but it is likely to give Secretary Ickes or like-minded successors, opportunities to project some TVA propositions into the West (p. 40). It will bear watching.

### Sell Them at Headquarters

In dealings with government agencies, you may think you have your problem settled when you sell the Western offices. But Arnold Kruckman, our Washington editor, points out (p. 44) in connection with the troubles of the citrus fruit conversion men from southern California, that the selling also has to be done back in Washington.

### Meeting the Post-War Need

Speaking of selling, the question of how to build up a program for post-war operations is puzzling many of our war contractors who had no pre-war experience. The Los Angeles Chamber of Commerce has set out to meet that need, by scheduling a sales school for just such contractors (p. 33).

### We Can Get Along with Less

For the first time in the war period, industrial employment in California has fallen below the comparative level of last year (p. 69). On the other hand, the reason for employment declines may be greater efficiency. For example, in the Portland area, electric department man-hours dropped from 69,000 on the first Victory ship to 29,606 on the ninth (p. 58).

### Hope Springs Eternal

From time immemorial, Salt Lake has battled (unsuccessfully) the winter coal smoke problem. Here's another attempt (p. 59).

# STANDARD ENGINEERS NOTEBOOK

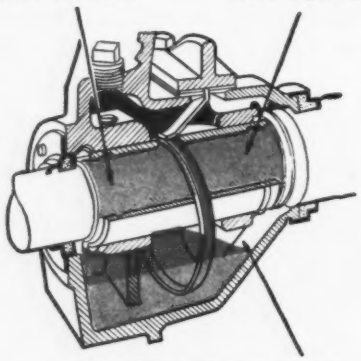
VOL. 1-W NO. 4

## Heat-resistant, compounded oils have many uses

Calol Multi-Service Oils have successfully solved lubrication problems in many different types of industrial equipment.

SPREADS RAPIDLY AND EVENLY

ADHERES TO HOT SURFACES



RESISTS HIGH HEAT AND OXIDATION

They are especially valuable for the lubrication of ring-, chain- and collar-oiled bearings that operate in high ambient temperatures, and for use in pressure-circulating systems.

Calol Multi-Service Oils are made from selected base stocks and special compounds. The compounds give them detergent and oxidation inhibiting characteristics.

Calol Multi-Service Oils are highly resistant to heat. Because of their attraction for metal under any condition, they adhere to and lubricate the hottest bearing points.

Calol Multi-Service Oils are sold in four grades: 55X, 65X, 75X and 85X. (Approximately SAE 20, 30, 40 and 50.)

## Recommendations for electric motor lubrication

To meet the varying conditions under which electric motors operate and to properly protect the different types of electric motor bearings, Standard of California offers a long list of plant-tested lubricants. The grades of Standard oils recommended for the type bearings found in most electric motors, are in the chart below. Recommendations for other motors may be obtained by writing Standard of California, 225 Bush Street, San Francisco 20, California.

| BALL AND ROLLER BEARINGS | |
|---|---|
| **OPERATING CONDITIONS** | **LUBRICANT** |
| Normal operating conditions, speeds high and where housings are oil-tight. | Calol Engine Oil 8 or 10 |
| Ball and Roller Bearings with high end thrust; under low speeds or high temperatures | Calol Turbine Oil 15 or Calol Turbine Oil 19 |
| Ball and Roller Bearings operating under extreme pressure and temperature | Calol Diesel Engine Oil 65 or Calol Deturbo Oil 60 |

| RING OILERS | |
|---|---|
| Low Temperatures | Calol Engine Oil 8 |
| Normal Temperatures | Calol Engine Oil 10 |
| High Temperatures | Calol Turbine Oil 15 |

| WICK OILERS | |
|---|---|
| Bearings | Calol Engine Oil 8 or 10<br>Calol Turbine Oil 15 |

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help—make your maintenance job easier. Call your Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

STANDARD OF CALIFORNIA

# SYNTHETIC RUBBER FURTHER INDUSTRIALIZES THE WEST . . .

***Southern California Project is a New Process Industry, Supplying the Entire Western Region, with Plastics an Important By-Product***

NOW that the California Synthetic Rubber Project has cast off its veil of secrecy and is admittedly complete and in full operation, a good prospective can be had of its significance, as well as of its machinery and processes.

Its primary purpose is to replace for the Los Angeles tire factories, which include all the major manufacturers, and the growing number of mechanical rubber processors in the West the supply of natural rubber cut off by the Japanese invasion of the East Indies. As Los Angeles ranks second to Akron in tire manufacturing, a project conveniently located to these tire factories was desirable. With petroleum refineries right at hand, the southern California manufacturing area was an ideal answer to the need, particularly because grain and grapes to produce ethyl alcohol were also available.

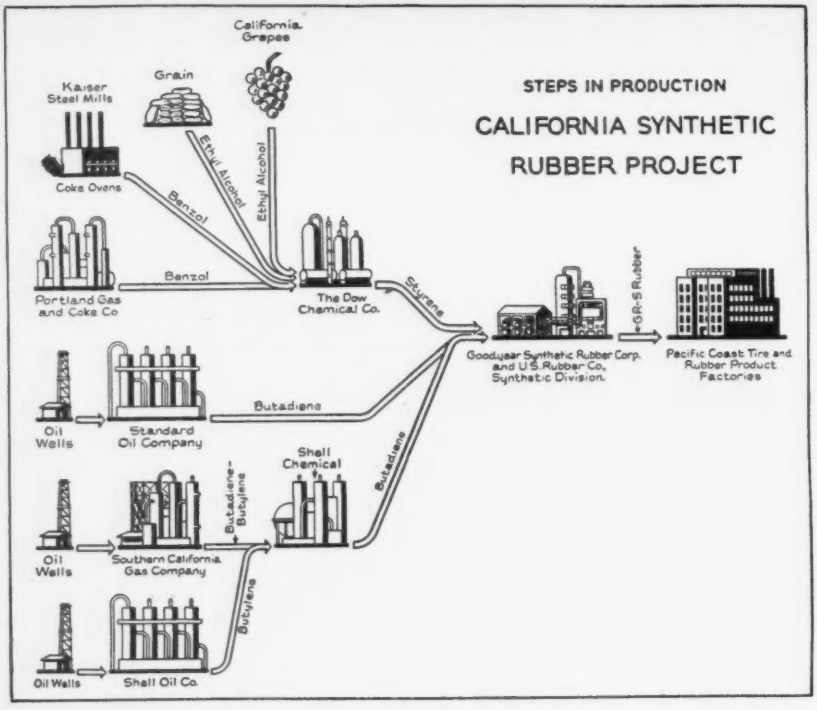
As a step in the industrialization of the West, it has provided an entirely new process industry, entailing the use of petroleum from the oil companies, benzol from steel and gas plants and ethyl alcohol from wine distillers. No other synthetic rubber project in the country is so self-sustained as to raw materials. Largely because neither raw materials nor the finished product have to be transported any great distance, but also because of wise and timely purchasing and economical expediting, the cost per ton of rubber output is said to be the cheapest in the country, despite the higher labor rates.

In the third place, some of its by-products are highly important in the plastics industry, thus greatly encouraging the development of plastics manufacture in the West. Others are important in the manufacture of aviation gasoline.

Since synthetic rubber was forced on the country by the war and the government consequently had to finance and develop its manufacture in as short a time as possible, the synthetic projects are government-owned. Consequently their post-war existence is subject to some uncertainty, and President Roosevelt hinted not long ago that international post-war trade readjustments might necessitate scrapping the entire synthetic rubber program.

The fact that some steps already had

**• Spheroid tanks for storing hydrocarbon streams under pressure belong as naturally with synthetic rubber as ham with eggs**




been taken by the American rubber and petroleum industries before the war to develop substitutes for natural rubber indicates, however, that private capital may find it advantageous to continue on with synthetic, rather than switch back to natural rubber. The following facts may indicate some of the economies involved:

| | *Synthetic* | *Natural* |
|---|---|---|
| Number of workers needed to produce 90,000 tons rubber | 2,800 | 60,000 |
| Acreage required | 260 | 260,000 (20 million Hevea trees) |
| Raw materials | Near at hand with sources under domestic control | 10,000 miles or more away* |

(*) *Subject to political and climatic interferences.*

Synthetic rubber is not yet the equal of the natural product for tires, it is admitted, but the synthetic technicians point out that they know how to make better tires than actually are being produced today, and that as soon as operating methods catch up with scientific knowledge the product will improve accordingly. They also point out that as it took 20 years to increase the life of natural rubber tires from 5,000 miles to 25,000 miles, critics should not be too hasty in judging a product that is commercially less than two years old.

On the other side of the ledger, synthetic possesses certain advantages not found in natural rubber, such as its greater resistance to oils and its self-sealing qualities which have made it bullet-proof for airplane fuel tanks. The Buna-S type was chosen for the greater part of the government's rubber program because it is similar to the natural product in qualities and manufacturing properties, thus allowing the utilization of existing equipment for processing to rubber goods. Actually, it is not a rubber substitute, but a new raw material—a plastic—with great possibilities for the future.

Synthetic plants utilizing alcohol instead of petroleum have received favorable publicity lately because they were completed so much quicker. The petroleum processes are cheaper, however, and in the long run should easily out-distance the alcohol plants.

Six companies operate for the government's Rubber Reserve Company, the plant units which go to make up the California project. Southern California Gas Company, Standard Oil Company of California and the Shell Chemical Division of Shell Union Oil Corporation produce and refine the butadiene, Dow Chemical Company makes the styrene and Goodyear Synthetic Rubber Corporation and United States Rubber combine the two materials in three co-polymer plants into the Buna-S rubber, or GR-S (Government Rubber-Styrene Type) as the government defines it. Defense Plant Corporation is the owner of the properties.

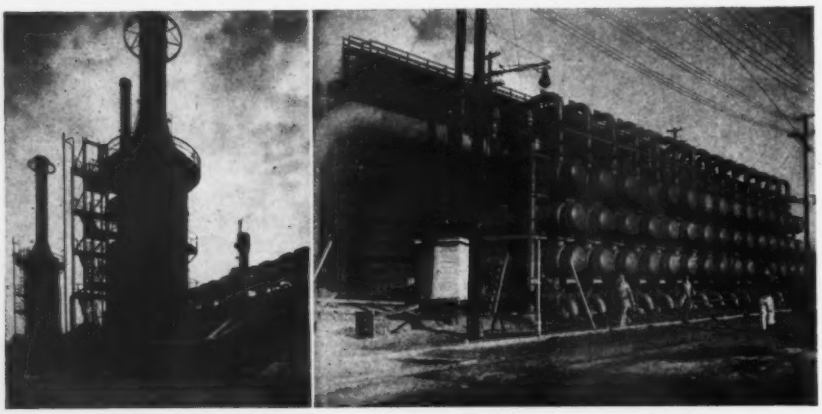
The speed with which this project was constructed is amazing. Ground was broken September 5, 1942, and at 11 a.m. on June 7, 1943, the first synthetic rubber was produced, although full production was not reached until the project was completed this year. Delivery of equipment and materials from east to west was cut from six weeks to three, and the teamwork between government agencies, lessees and general contractors was excellent.

At its rated capacity of 90,000 tons annually, the project will produce enough rubber to make 54,000 passenger tires daily, or one set of tires yearly for every automobile on the Pacific Coast, if all the rubber were used for this purpose. To produce that tonnage of natural rubber on high-yielding plantations, nearly 60,000 workers would be required, tapping 20,000,000 Hevea trees on nearly a quarter of a million acres.

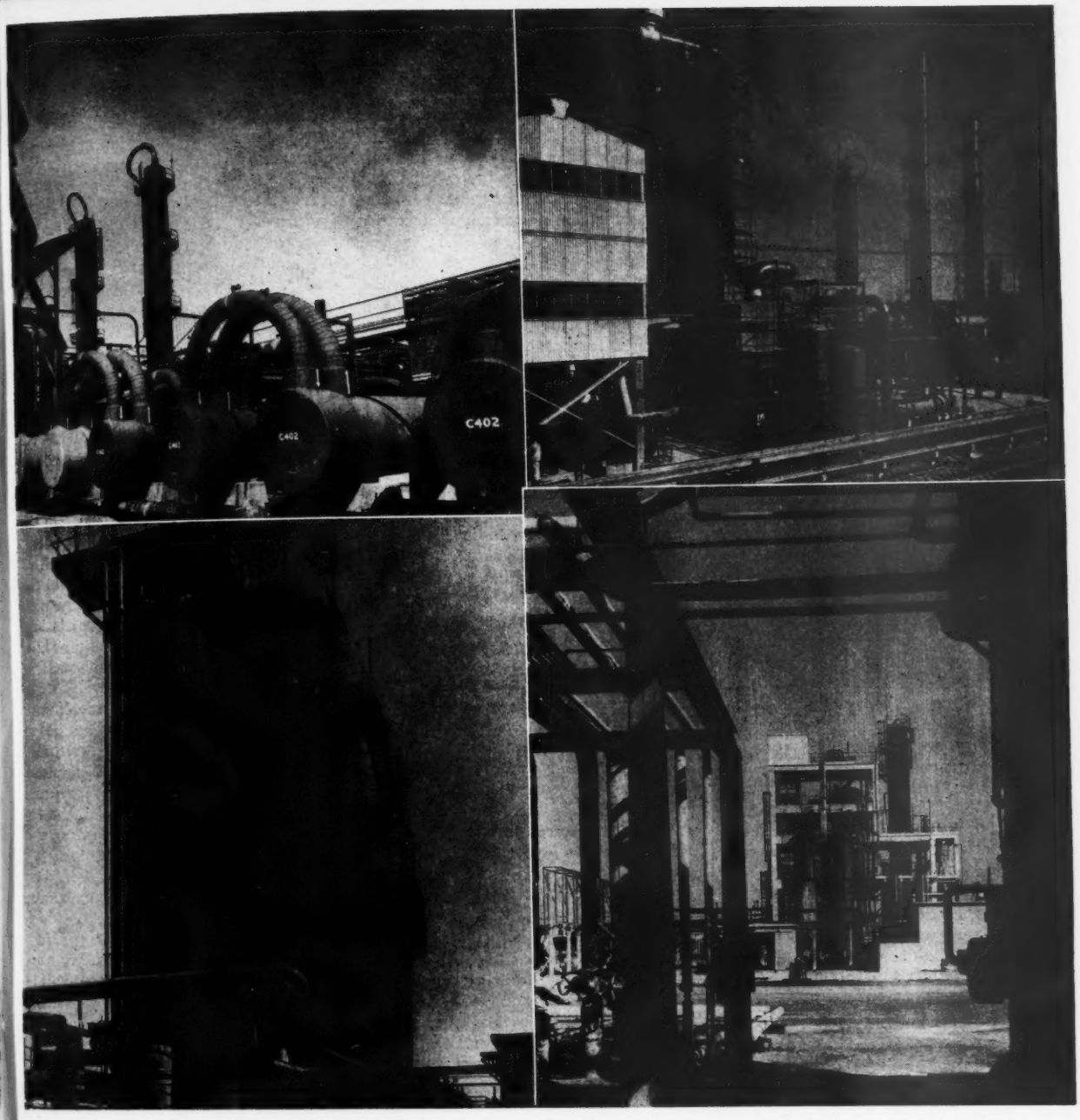
Estimated national production of synthetic rubber under the government's program is 765,000 tons annually of the all-purpose Buna-S type of synthetic rubber, as against a normal peacetime consumption of 650,000 tons of natural rubber.

The California project is a highly integrated chemical process in which the individual plants operated by the six companies, all located in the Los Angeles area, are linked together in a continuous production flow from petroleum, benzene and alcohol through butadiene and styrene to polymerization units which make the Buna-S.

Southern California Gas Company's part in the project is most widely known



**•(Left) Furnaces and reactors at Standard unit. (Right) These are the heat exchangers that cool the water that cools the gas that stunk up the town that hollered and swore about Southern California Gas Company's butadiene. Now everything's fine on Aliso St.**




**• (Upper left) Heat exchangers at the Standard unit. Shell's catalytic dehydrogenation unit (upper right) splits butylenes into butadiene and hydrocarbon. (Lower left) Dow styrene finishing unit. Dow's ethyl benzene unit (right) also feeds aviation gasoline plants.**

by the smell emanating from its Aliso Street gas works for several months after it had been converted to butadiene manufacture. The plant had a capacity of 50 million cubic feet of gas a day derived from diesel oil and before the job of suppressing the smell had been finished, Rubber Administrator Dewey had to come out to Los Angeles and pacify thousands of indignant people. Heat exchangers finally eliminated the fumes.

Briefly stated, the process consists of cracking naphtha, or low grade gasoline, and obtaining a petroleum fraction composed of various hydrocarbon chains containing four carbon atoms. In the industry this is called a "$C_4$ cut." The constituent gases include butane, butylenes and butadiene.

The crude butadiene and butylenes or $C_4$ fraction are recovered by conventional gas absorption methods, from the gases produced from the petroleum vapors and are sent by pipeline 18 miles to the Shell Chemical Company for purification. The other ingredients obtained as by-products are used in the manufacture of fuel gas, fuel oil and aviation gas.

Raw materials for the process are obtained from refineries of Shell, Associated, Wilshire, Texas, Union Oil, General Petroleum and Standard Oil Company of California.

More than 10 years of intensive experimentation at Shell Chemical's laboratories at Emeryville, California, was followed by the completion even before Pearl Harbor at Houston, Texas, of one of the first butadiene plants to supply the rubber companies.

Shell's southern California plant consists of acres of towering distillation columns, cooling units, reactors, steam superheaters and futuristic spherical storage tanks. Miles of pipe lines carry the material from

one operating unit to another in a continuous flow.

Chief components of the $C_4$ fraction received from Southern California Gas Company are butadiene and butylene, with a trace of acetylene which must first be removed by conversion to the other components. The resultant butadiene-butylene mixture is fed into an extraction system where the butadiene is separated from the butylene, and the remaining butylene is combined with a butylene-butane mixture brought from one of Shell's refineries, the combination then flowing into a "cold acid" unit.

This process, perfected by Shell, extracts isobutylene from the material, using sulfuric acid as a catalyst. The isobutylene is polymerized, a chemical process in which the molecules hook together, and the resulting di-isybutylene and heavy polymers are sent to one of Shell's refineries to be used as an important constituent in aviation gasoline.

Butanes and normal butylene removed from the process are sent through an extraction unit where the butanes are removed. Butanes are also an important component of aviation gasoline and are piped to one of Shell's refineries.

The normal butylenes are converted into butadiene by a catalytic process, the products from which are combined with the Southern California Gas Company's butadiene and purified in the butadiene extraction unit. Pure butadiene is then piped to the co-polymer units operated by the rubber companies, to be converted with the styrene to GR-S. Unreacted materials from the co-polymer plants are recovered and returned to the Shell Chemical plant for reprocessing.

Standard of California's new butadiene plant at its El Segundo refinery has a nominal capacity of 15,000 tons of butadiene a year. The manufacturing process employed is designed to produce essentially pure butadiene from normal butane feed that is obtained from crude and natural gas.

This plant is divided into two main process sections, (1) catalytic dehydrogenation and (2) selective solvent extraction-distillation sections.

The catalytic dehydrogenation unit is of the Houdry Adiabatic type, the unique feature of which is utilization of heat of combustion of catalyst deposit to provide heat of dehydrogenation of butane to butene and finally to butadiene. The extraction section is of the conventional type employing a solvent that preferentially dissolves butadiene, and which is also employed further in purification of the butadiene by solvent distillation.

Butane gas is first dehydrogenated by the removal of four atoms of hydrogen from each molecule. Extremely high temperature is required for one phase of the process, after which the gases are compressed to liquid form.

The butadiene, a gas at atmospheric pressure but liquid at high pressure, is extracted from this fluid and transported by pressure type tank trucks to the rubber plants. To cool the butadiene mixture from its high temperature, the plant pumps large volumes of water from the Pacific Ocean, a mile away.

At another stage of the job hot air, at high temperature, is blown through the reactors, where the conversion to butadiene takes place, at a rate of 80,000 cubic feet a minute, or 360,000 pounds an hour. This air must previously be purified by electrostatic filters which remove any dust that might affect the action of the catalyst used to bring about the conversion. Heat from this air is then recovered in high pressure boilers, where it generates 55,000 pounds of steam hourly for operation of the many pumps and for process heating.

The compressor installation, handling the various hydrocarbon gas streams in the process, totals 7,500 horsepower and is the largest in the West.

There are products being marketed by Standard that, although not produced at the El Segundo plant, have a bearing on the Southern California project. One of these is "Oroplast" which is used as an extender and plasticizer in the plastics and rubber industries and serves to augment rubber production as well as improve its quality.

Another product is viscous oil that is used in conjunction with latex rubber as an extender and is also used in some of the mechanical devices within the rubber industry itself. It is believed that these products will also be of interest to the paint, adhesive and leather industry as well as in demand for general industrial purposes.

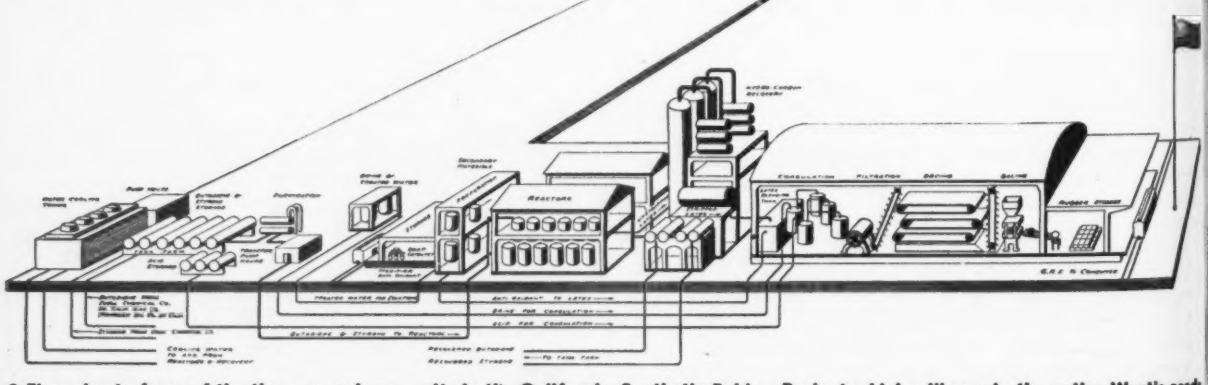
Dow's styrene plant was the first of the California synthetic rubber units to go into production, and for many months most of its output was shipped to other synthetic plants in the East. It is made in a group of small units, each an integral operating section designed to manufacture certain chemicals independently of the other units.

From the wine industry of California the Dow Chemical Company receives 15,000 gallons of pure alcohol per day. This is used in the manufacture of ethylene, a gas, which is piped to the ethyl benzene plant. Here 15,000 gallons of pure benzol are used daily, much of it coming from the Kaiser Fontana California coke ovens. Ethyl benzene, a liquid, is piped to a third plant, and the material is processed in the presence of catalysts and crude styrene produced by joining two raw materials and passing them through 35 miles of pipe line, and through white-hot roaring gas furnaces.

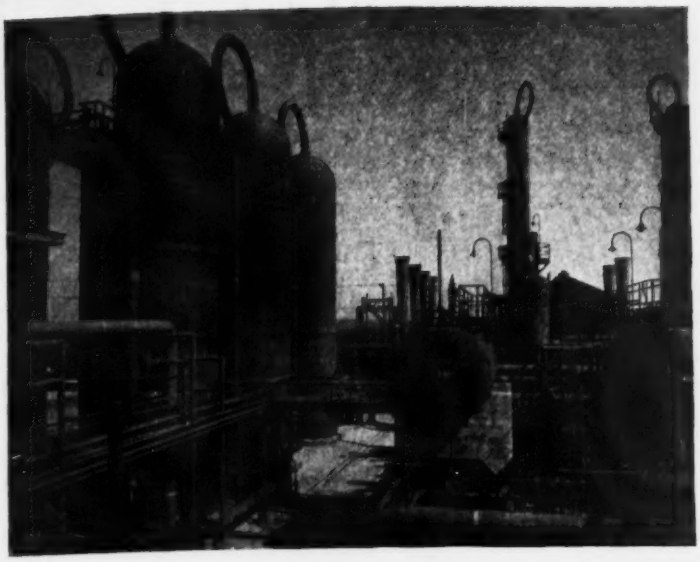
The styrene is then passed to a fourth plant, purified by distillation in a series of towering cylinders, and finally precooled to prevent polymerization or solidification. The final product is more than 99 per cent pure styrene. It is then piped to the co-polymer units operated by Goodyear and U. S. Rubber.

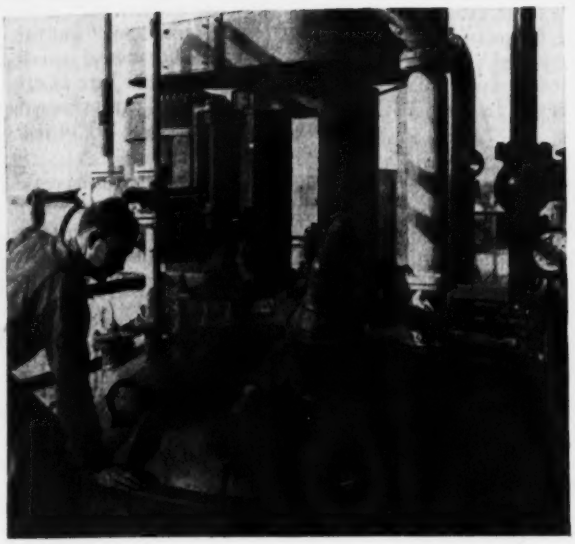
Only about 35 operators are needed on each of three shifts to control by delicate instruments this entire process, which means that each operator will produce about 2,500 tons of synthetic rubber each year, as compared with one plantation worker required for every ton of natural rubber produced annually.

In the three copolymer units where the synthetic rubber is made, the butadiene, styrene, soap solution, catalysts and other



• Flow sheet of one of the three co-polymer units in the California Synthetic Rubber Project which will supply the entire West's needs.





**• Acetylene polymerization unit (upper left) at Shell unit converts undesirable acetylenes in the hydrocarbon into polymers to facilitate their removal. (Upper right) Part of the recovery area where unreacted styrene is recovered and returned to storage in one of the three co-polymer units operated by Goodyear and United States Rubber. (Lower left) Inspecting batch of butadiene and styrene which polymerizes in these reactor tanks to form rubber latex. From the tank the latex goes to the coagulation unit where the acidified latex forms into rubber crumbs which are here being inspected (lower right) before being compressed into bales.**

chemicals in solution and water flow through a main pipe line into the reactors where polymerization takes place, the proportion of materials being controlled from a central control meter room. Approximately three parts of butadiene combine with one of styrene to make the rubber molecule.

The oily butadiene and styrene are emulsified in the soap solution by whipping them into small droplets. As the polymerization proceeds, the droplets become more viscous, or thicker, and more rubber-like. Emulsion is now no longer one of an oil in liquid, but an emulsion or a soft solid in a liquid. This is now a synthetic rubber latex.

When polymerization has reached the proper point, a chemical is added to arrest further polymerization and the batch is then run off to the blow-down tanks, where the latex is tested. The hydro-carbons which have not combined are then recovered, while the volatile butadiene is separated from the mixture by letting it boil off as a gas, and it is recovered by compressing it again. The styrene must be recovered by distilling under reduced pressures at higher temperatures.

The batch of latex, containing 25 per cent synthetic rubber, is treated with an anti-oxidant which prevents deterioration. Many batches of latex are bulked and blended for uniformity of product, in 30,000 gallon tile-lined, concrete storage vats.

The synthetic rubber latex is then coagulated by salt and acid, and the small particles coalesce as larger flocs, or crumbs. In coagulation, 70 tons of rock salt, which is brought from California's desert areas, will be consumed daily.

After coagulation, the rubber crumb is filtered, washed and then pressed to remove the excess water, the rubber being dried by passing back and forth three times in large continuous driers. The 12 driers of the plants will evaporate 160 tons of water per day.

The dried rubber is weighed on automatic scales, which feed 75 pounds to the automatic balers where it is pressed into loaves 14 x 28 x 7 inches. Nine thousand such loaves will be produced every day at full operation.

## Donald Nelson Coming West

Donald M. Nelson, War Production Board chief, has wired *Western Industry* that he will come to the Pacific Coast at the first opportunity, but not before late June or early July. This opportunity for him to study conditions out here first hand should go a long way toward clearing up the manpower and production problem described in the last issue of *Western Industry*, of the armed services placing huge contracts to sustain the mounting war in the Pacific and leaving everyone in the area, including their own men, in the dark as to what is transpiring.

Mr. Nelson said:

"Re your telegram May 19, am unable to give you definite word at this time concerning my proposed trip to the Pacific Coast but I do very much want to come out to the Coast and will do so at the first opportunity. I do not see, however, how I can manage to be out there before the latter part of June or early in July.

"DONALD M. NELSON,
"War Production Board."

His inability to come West earlier is taken to mean that he would not want to move before the European invasion, because its outcome might change the production situation radically, both nationally and on this Coast, thus obsoleting his work on the Coast if he came too soon.

## Will o' the Wisp

Announcements that civilian production would be permitted in the No. 1 critical labor areas, in which the whole Coast is included, in plants having less than 50 employees, have proved to be largely a false alarm. This permission is subject to existing manpower ceilings and restrictions on critical war materials. Possible exceptions include a share for G-E's Hotpoint plant at Ontario, Calif., of the prospective production of electric irons and for some coast factories in the three carloads of pails needed for Coast fruit orchards this summer.

## Making Shells at Fontana

Steel fabrication operations, heretofore dimly suggested as a possible development at the Fontana steel mill, have suddenly become an actuality with the award of a $25,000,000 Army Ordnance contract to the Kaiser Co., Inc., Shell Division, to manufacture 8-inch and 155-mm. artillery shells.

Using steel billets from the Fontana plant, the forging and rough machining operations will take place in an extension to be constructed by the Corps of Engineers which, when completed, will be equipped with government-owned machine tools for the forging and rough machining of the shells.

The finished machining operations will take place in a section of the Denver Ordnance Plant, leased to the Kaiser Co., Inc., in order to make use of the surplus labor available in that area. The finished shells will then be sent to Army Ordnance loading plants.

Expenditure of $600,000 was approved for new construction and equipment facilities at Denver to handle the munitions work.

**• Saving Man-Hours—Employee suggestion plan, whereby Lockheed Aircraft Corp. has saved 4,000,000 man-hours annually, encourages employees to contribute ideas along line of improving their own efficiency and that of their departments. Ruth Berger (left) suggested new breakdown wiring system for B-17 bomber wings, and is only woman at Lockheed to win maximum $500 award for speeding up production in the factory area. Paul Evans (right) former road machinery salesman, turned in nine suggestions, had eight accepted, and received $2079.00.**

## Link Up Coast Planning

First steps in coordinating post-war planning activities of the three Pacific Coast states were taken at a meeting in Portland May 15 of state planning directors. California was represented by Alexander R. Heron, director of the California Reconstruction and Reemployment Commission, and Van B. Stanbery, its executive officer, Oregon by Dr. Victor R. Morris, chairman of the Oregon Post-War Readjustment and Development Committee, and John W. Kelley, executive secretary, and Washington by Pat Hetherton, director of the Washington State Planning Council and Roderick Olzendam, publicity chairman.

Aluminum was the immediate question discussed, with the first step to be taken an investigation of how much of the aluminum rolled at Spokane can be used in the West. Regarding the future of war plants generally, the conference urged the three coast governors, Warren, Snell and Langlie, to recommend to the national governors council that these plants be kept as standbys for future industrial expansion rather than dismantled because of lack of immediate use.

Oregon and Washington members also decided to set up a closer liaison with the Bonneville Power Administration to gain an understanding of Bonneville's marketing studies.

## Plastics Materials Source

For the first time West Coast manufacturers of molded plastic products are to have a local source of molding compounds. Weyerhaeuser Timber Co. will shortly begin small capacity production of molding powders for commercial markets. First production facilities will be established at their Longview, Wash., set-up.

C. C. Heritage, technical director of the company, describes the new product as an entirely new type of thermosetting plastic molding compound, said to be superior in certain respects to standard phenolics. It is stated that their use will permit the production of a full range of molded items whether designed for general use or high impact.

## Green Light on Alcohol

WPB has finally approved the $2,250,000 project for making industrial alcohol from wood wastes near Eugene, Oregon, by the Willamette Valley Wood Chemical Company, after revoking its original authorization and putting the proposition on the shelf for many weeks. Donald Nelson said it had been approved on the basis of its exploratory value, since it could not be put into operation until next year.

## Electronics to the Fore

California is now producing electronic equipment at a rate equivalent to the output of the national radio industry before the war, H. L. Hoffman, president of the West Coast Electronics Association and president of the Hoffman Radio Corp. of Los Angeles, announced in a radio broadcast May 14 as a representative of the electronics industry. Before the war there were approximately 2,000 people employed in the radio and electronics industry in California, he said, where today more than 20,000 are working around the clock manufacturing and developing electronic equipment.

Because of inability to get parts from the East since the outbreak of war, manufacturers have established an almost completely independent industry on the Coast, according to Mr. Hoffman, largely effected through the cooperative efforts of the Association. He reported that there are now over 125 plants in California producing complete radio and radar equipments and critical components, such as crystals, transformers, generators, motors, transmitting tubes, coils, resistors, condensers, fuses, microphones and a variety of other essential electronic parts.

## Teach War Plants to Sell

More than 3000 Los Angeles County wartime manufacturers, none of whom has ever sold civilian goods in peacetime markets, will be given an opportunity to learn the methods of selling to the retail trade at an all-day conference, sponsored jointly by the Los Angeles chamber of commerce and the Downtown Businessmen's Association at the Ambassador Hotel on June 6.

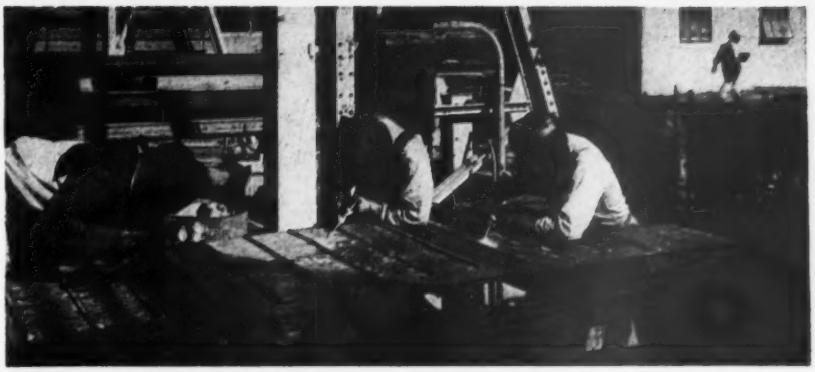
Subjects for discussion include: peculiarities of the retail business; how retail merchandise is promoted and advertised; mechanics of buying; credit, transportation, damage, delivery, etc.; how to sell to chain stores; how to sell to resident buying offices; what items can be made and sold locally; the potential retail market in the Los Angeles area; seasonal characteristics of retail buying; and the industrial future of Los Angeles.

## More Ships for Portland

Contracts have been awarded the three Kaiser yards in the Portland-Vancouver area for 58 additional vessels, and it is evident the yards will operate well into 1945.

Swan Island got 38 additional tankers. Vancouver's contract for 60 small coastal cargo vessels was rescinded and in its place was substituted a contract for 20 huge C-4 type troop transports. They are 20 of the 30 originally assigned to the Sun Shipbuilding & Drydock Company of Chester, Penn. The other 10 were assigned to Kaiser's Richmond, Cal., yard No. 3.

The new C-4's have far greater tonnage than any other vessel built in this area. They will take 7000 tons of steel, compared to 5000 for the carriers and 4000 for the Victory type troop ships. They will take approximately half again as many man-hours as the carriers, which started out with 4,500,000 man-hours and have now dropped to about one-third this amount. In the meantime work also proceeds on a floating drydock being built at the Vancouver yard.



**• Traction bars being welded to floor plates of tank-carrying invasion barges by A-C arc welding at Consolidated Steel Corp. plant, Maywood, Cal. Alternating current is said to be particularly effective because work can be done in corners without trouble from arc blow inherent in direct current under such conditions.**

## DuPont Buys Plant

Monsanto is not the only national chemical manufacturer to buy a Pacific Coast plant this year. E. I. DuPont de Nemours & Co. have purchased the Latimer-Goodwin Chemical Co. at Tacoma, which will be operated by the Graselli Chemicals Department of DuPont. The plant will continue manufacturing insecticides.

## Longview Glass Plant

Plans for construction of a $3,500.000 plant at Longview, Washington, by Owens Illinois Glass Co. are announced by Lou Kessler, Pacific Coast manager. A 35-acre tract has been obtained and it is stated construction will proceed after the European phase of the war has passed. Fourteen buildings and two large furnaces are included. Construction will be steel and concrete and glass food containers will be the plant's specialty. The Longview installation will be the same size as that at Los Angeles.

## Forestry Wins Its Own War

Through the development of glues because of the war's demands, an entirely new forestry picture is in prospect reports Chester J. Hogue, in charge of technical service for the West Coast Lumbermen's Association. If glued-up lamination develops to the point where future requirements of heavy industry can be met from the combination of small boards and gluepot, then gone will be the need for large trees from which to cut large "sticks."

If smaller trees can be profitably harvested and the lumber therefrom converted into every requirement of the building industry, the growth cycle of a forest can be greatly reduced. That means that private capital can better afford to retain control of forest-growing land with much shorter and more frequent periods of harvest.

Mr. Hogue points out that glued lamination construction has many advantages. It can be fabricated to any desired shape, size or length from lumber of sizes and lengths readily available. Laminations can be selected for uniformity in grade and quality. They must be seasoned for gluing, therefore the resulting structure will not shrink nor check. A camber can be built in to offset deflection. Additional laminations can be added at any point to give additional strength, or to provide greater area for timber connectors. Laminations on top of a roof beam may be stepped up to give slope to a roof and the laminated member can be bent to any desired curvature. The beam, column, arch or truss chord resulting from glued lamination is stronger than if sawn from a log in one piece.

Research, stimulated by war's demands, has developed all sorts of glues. Quick-setting cold glue; a phenolic resin glue now suitable for beams exposed to rain, frost, heat and cold; a casein glue that won't mold; and glues so strong that a glued-up, laminated member will not break on the glue line.

• AT TACOMA—Top row, left to right: Lt. Col. Kenyon Yauger, Washington State Selective Service; Robert M. Gaylord, president NAM; E. G. Griggs II, president St. Paul & Tacoma Lumber Co.; Walter D. Weisenburger, exec. vice president NAM; R. E. Untereiner, associate economist, NAM; unidentified army chaplain; J. D. Greensward, Allis-Chalmers Mfg. Co. Various Tacoma people in the second row (we're sorry we haven't their names).

• AT SEATTLE BANQUET—Top row: left to right: Lt. Comdr. E. J. Demson, contract termination officer, USN, from San Francisco; R. W. Vinnedge, president North Bend Timber Co.; R. E. Untereiner, associate economist, NAM, and Frank West, president Washington Manufacturers' Association. Second row: Dr. Ralph W. Robey, business editor Newsweek magazine; Wm. F. Devin, mayor of Seattle; Alex Hay, president Federated Industries of Washington; Earl Braden, president Associated Industries of Inland Empire, Spokane, and Darrah Corbet, president Smith Cannery Machines Co.

# N. A. M. Tells Industry's Story To Labor: West's Future Heard

EASTERN officials of the National Association of Manufacturers dipped their feet in an untried ocean in their annual tour of the Pacific Coast last month, when they stopped exhorting industrialists on the virtue and necessity of free enterprise long enough to experiment with selling labor the same ideas.

And Alfred Eames, regional vice-president for the Pacific Coast, took advantage of the series of meetings at Portland, Tacoma, Seattle, San Francisco and Los Angeles to remind industry on the Pacific Coast that it had better start planning for its future, which he felt confident was a rosy one.

The experiment with labor was conducted by Frederick C. Crawford, the dynamic (and Fred Allen-like) past president of the NAM, whose progressive labor policies have kept the Thompson Products Co. of Cleveland, which he heads, in the open shop category. The scene was Los Angeles, at the end of the coast tour, where a mass meeting in the Shrine Auditorium was attended by a big turnout of war workers to hear his crisp, crackling and witty story of what private enterprise and cooperation of labor with management had to offer the worker.

NAM also cooperated with the Merchants & Manufacturers Association of Los Angeles and the Personnel Conference of that city in the second annual meeting of the NAM Pacific Coast Institute on Industrial Relations, held at Santa Barbara. Mr. Crawford and Robert M. Gaylord, incumbent NAM president, also spoke at this gathering.

Pointing out that the principal thing which made business unpopular in the last ten years stemmed from the economic security of the common man arising out of hard times, Mr. Gaylord said:

"The system that people believe will give them the most security and the better living will finally be chosen. People do not give a whoop about free, private enterprise nor do the words public enterprise enchant them—they want security, leisure and comforts.

"Our job is to see to it that they understand the way in which free enterprise can operate and that they know why they can get much more from private enterprise than from a politically controlled economy.

"This cannot be done by deploring present day trends or by insisting that we know, and that whoever fails to agree with us is dumb. Private enterprise must actually perform better and look better if it is to survive. That job is up to us."

Calling attention to the West Coast picture, Alfred Eames, president of California Packing Corporation, pointed out that to achieve maximum production, the six states of California, Washington, Oregon, Nevada and Arizona had to import from other sections of the country a million and a quarter more workers—approximately 9 per cent of the west coast population. The increase for California alone was 15

per cent, with increases of 30 per cent in San Diego, 20 per cent in San Francisco, and 14 per cent in Los Angeles. Surveys in cities from San Diego to Seattle indicate more than 50 per cent of the newcomers intend to remain in the West. In one plant, 96 per cent expressed their intention to remain.

After the war the West will be faced with a new set of facts and its people must adjust themselves to the opportunities and vistas the new conditions open, Mr. Eames asserted, saying:

"True, we will have dislocation. Population shifts will occur. But in my opinion they will largely take place within the borders of our own Pacific Coast states. The large metropolitan areas will not have to absorb more than they can assimilate. We have hundreds of communities that will welcome an addition to their trained labor force.

"Why shouldn't we go forward positively? Look at our resources! Unlimited supplies of materials, men, tools, brains and power!"

### Assets of the West

Here are some of the West's assets as listed by Mr. Eames:

California has 10 of the nation's 15 leading agricultural counties. Some experts filled with California optimism have even said that a fully developed agriculture in this one state could feed the nation.

Here on the west coast we also have—

A paramount aircraft industry;

14 major shipbuilding companies and some 50 smaller ones;

The Geneva and Fontana steel plants;

60 aluminum foundries and scores of other malleable metal plants;

55 synthetic rubber projects, producing styrene, butadiene and related synthetics;

A rubber industry ranking second only to Akron's;

64 producers of molded plastics and other new chemical, lumber and metal by-products;

Daily petroleum production of 776,000 barrels;

An expanding textile trade with hundreds of factories; and Los Angeles established as the style center of the world;

Wide manufacture of synthetics made from coal, glass, milk, brine, petroleum, soy beans and corn;

Recently developing industries include aerojet propulsion, fluorescent lighting and plywoods;

Hydroelectric power plants beyond compare;

A motion picture industry that leads the world and, to an extent, which informs the world;

Washington, Utah, Nevada and Arizona have great stores of lumber, gold, silver, copper, coking coal, iron ore, potash and phosphate.

Stressing the need of thorough organization and intelligent planning for post-war, he urged meetings and conferences, but most of all, use of the same enthusiasm, courage and urgency with which miracles have been accomplished in the past three years.

"There is no doubt but that our aircraft and shipbuilding industries will be hard hit," he said. "But there is no reason for despondency, and I see no signs of it yet. In fact, there is a basis for optimism in the planning now under way in those industries.

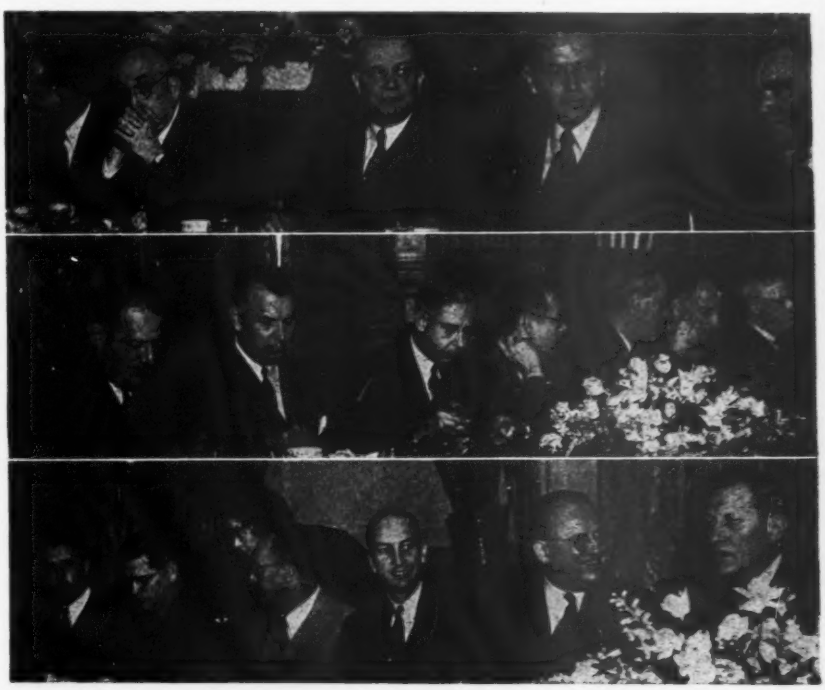
"One aircraft plant, now employing 40,000 men and women—as against a pre-war level of around 5,000 *men*—is preparing for a constant level of 15,000. This indicates a shrinkage of 60 per cent in current employment, but on the other hand it represents a 300 per cent increase over pre-war employment in the same plant. Furthermore, over 50 per cent of those who will be displaced in this particular plant are women who have expressed a desire to withdraw from industry and over-age men who are ready for and prefer retirement. The problem is still admittedly great, but let's not assume we can't find a solution.

"Anyone familiar with our Pacific Coast industrial picture knows that the small business and industrial plant has always been the backbone of our Pacific Coast economy. They must not be made to walk the plank through government indifference, whim, or ignorance. To the extent these small firms can adjust themselves for peacetime operation, they must be saved.

"We need and want hundreds of small companies. A concerted effort should be made by our west coast communities to attract small companies to share our economic and physical wealth. They will give us the advantage, too, of not having all our eggs in one basket.

"Another important competitive advantage not mentioned previously is our proximity to the Orient. We should produce much of the materials which will be needed

**• SPEAKERS' TABLE AT N.A.M. PORTLAND MEETING—Reading from left to right: S. E. Fletcher, manager of the Continental Baking Co., president of the Columbia Empire Industries and toastmaster at the dinner, Walter B. Weisenburger, executive vice-president of N.A.M.; Earl Riley, mayor of Portland; Dr. R. E. Untereiner, associate economist with the N.A.M.; John Hogg, mayor of Vancouver. Second row (from left): Lawrence Calvert, N.A.M. director for Washington and associated with the San Juan Fishing & Packing Company in Seattle; T. H. Banfield, president of Iron Fireman Company and former N.A.M. director; Russell G. Smith, executive vice-president of the Bank of America who represented local prime contractors at the afternoon session; Ed Miller, assistant managing editor of the Oregonian; Lt. M. R. Merryfield, USN, representing government on contract termination; Ray F. Becker, president of Ray F. Becker Company, representing local sub-contractors on the afternoon panel; Judge James A. Emery, N.A.M. general counsel. Third row (from left): Frank E. McCaslin, president of the Oregon-Portland Cement Company and vice-president of the Portland Chamber of Commerce; Chaplain Charles H. Browning, Portland Air Base; Robert R. McKean, manager of Columbia Empire Industries; J. D. Greensward, assistant treasurer of Allis-Chalmers Mfg. Co. who represented industry on the Contract Termination panel; Paul B. McKee, president of the Pacific Power & Light Co. and N.A.M. director for Oregon; Robert M. Gaylord, N.A.M. president and president of the Ingersoll Milling Machine Company.**



for reconstruction and for raising the living standards of the Far East. Most of Siberia, China and India is undeveloped and unsurveyed—economically and geographically. Helping the billion people living there—approximately half of the world's population—to reach a higher economic level, should be a great part of the future program of the west coast.

"We shall have little or no reconversion. Our major industries were constructed for but one major purpose. In some cases it will simply be a problem of dismantling and starting again from scratch. But why not? Why go back, which is the reconversion process? Why not go forward with new buildings, new plants, new processes, new inventories and new horizons?

"This summary forecasts that the west coast must not be sold short. It is resourceful, inventive, adventurous and thrifty—especially thrifty, despite the romantic tales of extravagance which have flared in careless publications. For the coast saves money! In 1942. the seven states of the 12th Federal Reserve District—with only 10 per cent of the nation's population—accounted for 53 per cent of the 500 million dollar *increase* in national savings!"

### Contract Termination

At the Portland discussion panel, Ray F. Becker, president of the Ray F. Becker Company, fabricators of steel buildings and metal products in Portland, put forth a few new ideas concerning contract termination which aroused considerable interest. When the point concerning removal of government property came around he said:

"We would like to see this elaborated to include property fabricated for war orders, and it does not necessarily follow that it is government property until such time that the government pays for the same. It is still vital to dispose of war production materials previous to the time that it becomes government-owned."

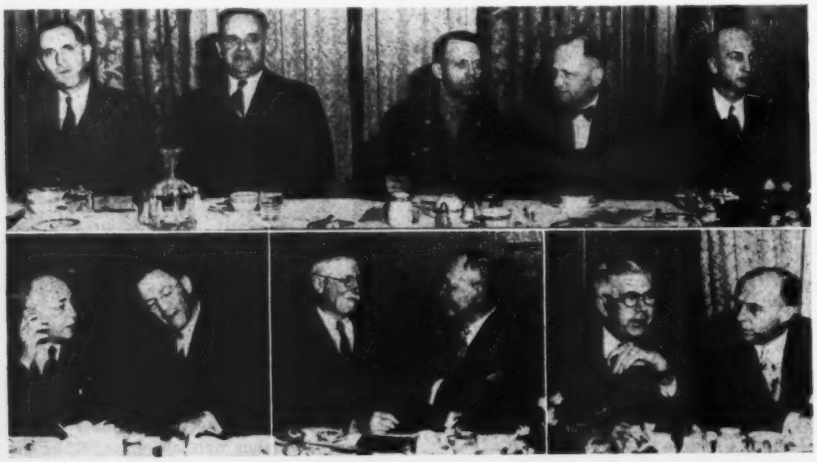
He also suggested another point which was of particular interest to sub-contractors:

"We might suggest the right be given the vendor to ask a termination cancellation board to step in and give the vendor a hand in endeavoring to settle with an obstinate or unruly prime contractor. Contract terminations could conceivably stretch into years, and what with renegotiation and income tax laws, a subcontractor should have some sort of board of appeal or assistance from a contract termination agency to bring his case to a close after he has endeavored to settle it without avail."

Patriotic interest has come first with business in its war contracts, Col. Fred C. Foy, former San Franciscan, told the San Francisco discussion panel. At no time has business been interested either wholly or primarily in profits.

The harm business has suffered is in getting soft because the competitive urge to be economical is lacking, Col. Foy said.

James A. Folger, Pacific Coast regional director of WPB, expressed confidence that the Pacific Coast would not suffer from termination of war contracts more than the rest of the country beyond what is due to the fact that it has so large a proportion of the total volume of war contracts.



**• AT SEATTLE SPEAKERS' TABLE—Top row: Paul R. Smith, president M. R. Smith Lumber & Shingle Co.; Wm. T. Laube, counsel, Federated Industries, Washington; Lt. Col. Kenyon F. Yauger, chief Veteran Personnel Division, Washington State Selective Service; Raymond J. Huff, vice-president Puget Sound Bridge & Dredging Co.; J. D. Greensward, assistant treasurer, Allis Chalmers Mfg. Co., Milwaukee.**

**• MORE FROM SEATTLE—Second row: W. B. Weisenburger, exec. vice pres., NAM; Charles F. Clise, president Washington Securities Co. and president Seattle Chamber of Commerce; James A. Emery, general counsel, NAM; E. I. Garrett, president Wire Rope Mfg. & Equipment Co.; Frank MacLaughlin, president Puget Sound Power & Light, and Roger H. Cutting, president Northwest Lead Co.**

**• SCATTERED PORTLAND SHOTS—Third and fourth rows.**

**• MORE TACOMANS—Bottom row: Lloyd Thorpe, asst. advertising manager, Weyerhaeuser Timber Co. (at left); remaining four unidentified.**

# New Conveyor Adaptions In California Dehydration Plant

ONE OF the outstanding Western food processing developments resulting from the war is the E. H. Spiegl vegetable dehydrating plant at Salinas, California, because of its large-volume operations and its full utilization of conveying and materials handling equipment.

Lack of volume, and the consequent necessity of resorting to many hand operations, have been drawbacks to profitable dehydrating and freezing. The Spiegl organization have overcome this in large measure: first, by concentrating their efforts on three items—carrots, cabbage and potatoes—in order to build volume and get long runs, and second, by mechanization to the greatest possible extent. They are also in a favorable position to undertake freezing operations.

Over 400 tons of fresh vegetables a day can be handled, and by dehydrating carrots from June to December and cabbage and potatoes the rest of the time, the plant can be kept operating 12 months in the year. Indications of the size of the plant include the following: electricity required to operate the machinery and conveyors, 1,000 h.p.; daily gas consumption, for heating dehydrating tunnels and the ten 100-h.p. boilers providing steam for the blanching and sterilizing equipment, 4,200,000 cubic feet daily; water evaporated when dehydrating carrots, more than 70,000 gallons a day.

Some of the materials handling facilities are an outgrowth of E. H. Spiegl's experience in the Salinas lettuce deal before he entered the dehydration game. Several years ago his organization developed a special loader for field harvesting, by which the carrots, after having been plowed up and topped, are thrown into the hopper of an inclined conveyor mounted on wheels, which loads them into truck trailers, some of 4 tons capacity, others taking 8 tons. Both the conveyor and the trailer have 46-inch wheel gage, and so can use the irrigation ditches as tracks. A tractor pulls both conveyor and trailer through the fields.

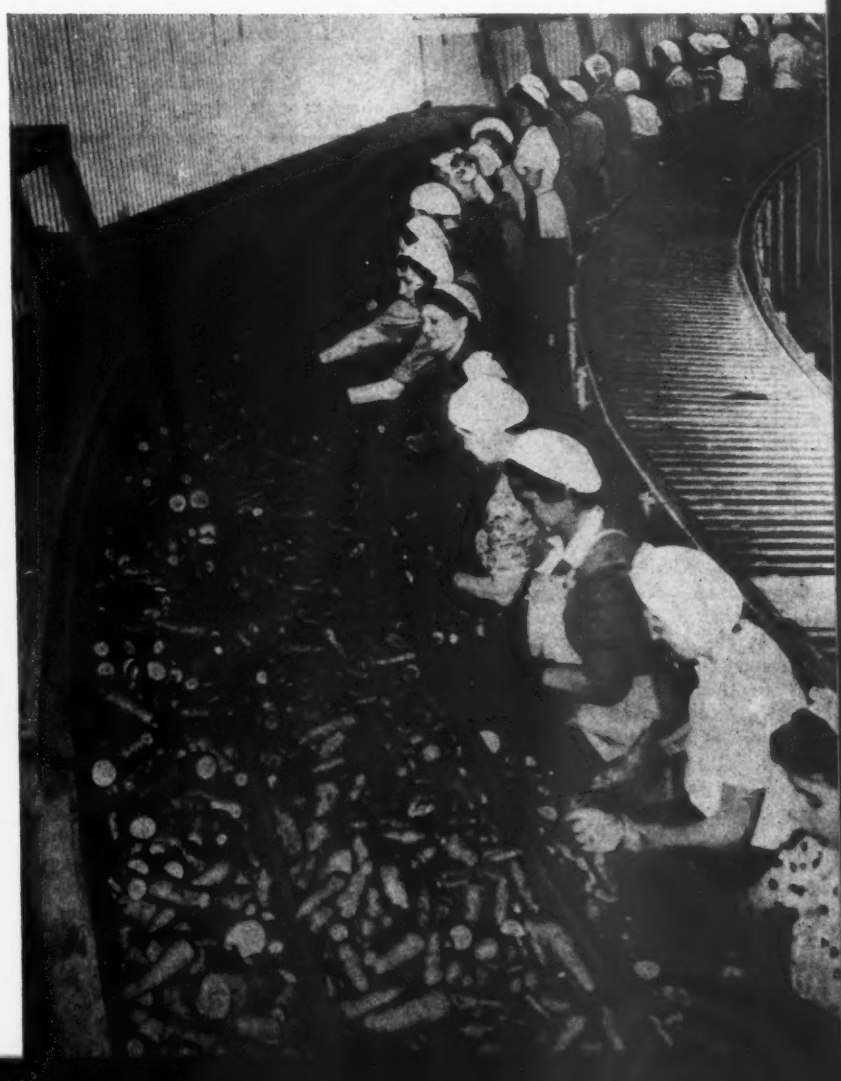
Arriving at the plant, the entire trailer load is dumped by means of a tilting device on a 27-foot wide slat conveyor which operates with variable speed. The carrots are carried slowly up an incline and delivered to the "merry-go-round," another Spiegl invention developed originally for use with lettuce, and which enabled a full crew to trim, clean, grade, ice and load a railroad car of lettuce in 20 minutes.

The merry-go-round is an endless rigid belt, 360 feet in circumference, with the crew sitting on the inside of this revolving unit. Spacing boards divide the surface of the belt into three sections, with the carrots discharging from the receiving conveyor into the middle section. As the long stream of carrots is carried past the workers, they cut off the tops and tips, drop them into the inner section and throw the trimmed carrots into the outer section, from which they are plowed off into a washing flume.

Excess grit having been washed off, the carrots are elevated out of the flume by a detachable belt slat conveyor and discharged into a standard lye peeler, where the skins are removed by a 5 per cent solution of lye and boiling water. They next pass into a revolving washer with special high pressure nozzles; in this operation all traces of lye and particles of skin are removed.

Belt conveyors next carry the carrots past women who inspect them for imperfections and cut the larger carrots into two or three pieces in preparation for dicing. Automatic machines dice the carrots into pieces ¼-inch square, and then they enter a vibrating device which scientifically spreads them on trays, 2½ lbs. to a square foot. On these trays they are conveyed through 12 blanchers for an operation requiring 8½ minutes under a flow of steam

**• This "merry-go-round" conveyor for trimming carrots is something distinctive in the fruit and vegetable processing industry, and eliminates much handling. The big belt travels in a circle 155 feet in diameter and the frame is mounted on trunnion wheels running on steel rails. It is driven by a 5 horsepower variable speed motor and pinion gear meshing with a huge ring gear 360 feet in diameter, cast in three-foot sections.**



• **(Left) Carrots discharged from the peeler are washed with a special high pressure nozzle which removes all traces of lye and particles of skin. (Right) quantity to fill each can is automatically weighed and released as the cans are conveyed past the operator.**

which keeps the temperature in the blanchers at 212 degrees.

The trays are then removed from the blanchers and stacked for drying. The Spiegl system provides for two-stage dehydration, the trip through the primary drying tunnels at 185 degrees taking 2½ hours and reducing the moisture by 75 per cent, while 6 hours in the secondary tunnel at 158 degrees brings the moisture content down to between 3.5 and 4.5 per cent. As this is well below the specified maximum moisture content for carrots, a third stage is not necessary.

There are 24 drying tunnels, 8 primary and 16 secondary, each 45 ft. long, 6½ ft. wide and 6½ ft. high. The vegetables move through them in trays loaded on small cars running on tracks. Each car carries 40 trays in two stacks of 20, and each tunnel holds 12 cars.

After dehydration, the small dried particles pass over a shaker which removes the undesirable fines. The product is then carefully inspected on a belt conveyor as it passes under special lighting equipment. The material is then conveyed to automatic weighing and filling devices, which fill five-gallon cans to exact weight. These cans are then closed mechanically by a special unit which draws off all air and replaces it with carbon dioxide to preserve the contents. After the cans are sealed, they are conveyed by a declined chain belt conveyor to the shipping platform.

The Spiegl Food Company is owned and operated by E. H. Spiegl; Leo Maller is manager and Fred S. Peters is superintendent. Irene Breschini is chief chemist. The plant design is the result of a collaboration on the part of the Western Regional Laboratories, of the U. S. Dept. of Agriculture at Albany, California, and Prof. W. V. Cruess of the University of California at Berkeley.

## Boeing Makes Safety Devices Still Safer

Boeing inaugurated a policy of making its own safety equipment primarily because it was found that available stock models were not flexible enough to meet the variety of machine operations required in airplane building, according to Vincent Anderson, Boeing's safety engineer. Safety equipment which had been adequate when machines were operated by men with some or extensive mechanical background were found woefully inadequate when these machines were in the hands of inexperienced operators, some of whom never had seen a power tool, let alone operate one.

Some examples of improvements desiged in their plants at Seattle and elsewhere are:

A guard for a group of swing saws to cut metal which made it impossible for the hand to come in touch with a moving part of the machine.

On a punch press, through which strips of aluminum are fed, it was found difficult to devise a guard which would not interfere with production. In this case, a pair of mechanical fingers were designed so the operator would not have to touch the metal to guide it through the press, and there has not been an accident in 18 months.

This device is shaped much like an old-fashioned pistol. The handle is of pistol-grip shape and a trigger operates the two fingers at the barrel end of the tool. Pulling the trigger tightens the grip of the finger on the metal.

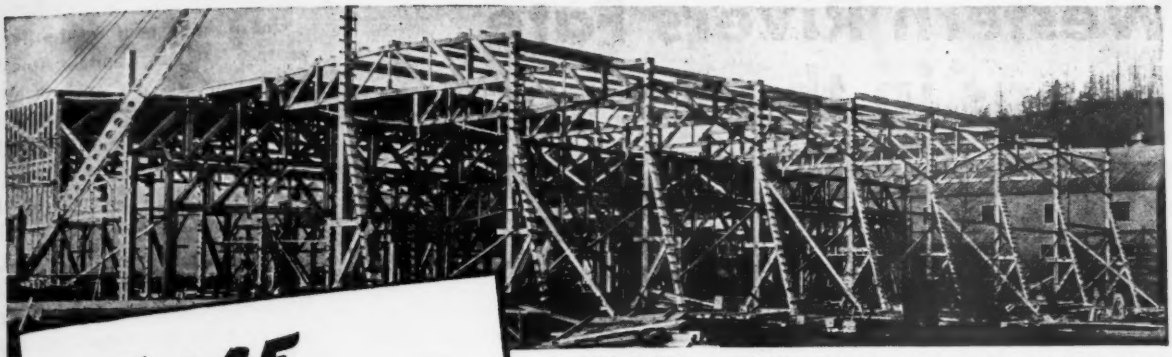
The shop in which these mechanical fingers are used has set a record of 18 months without an accident.

In another instance, a high accident rate was noted on a numbering press. The numbering die raised one inch from the material between each numbering operation and many fingers were hurt when they got under the die on the downward stroke. Here again difficulty was experienced in designing a guard which would not interfere with production. The solution was to change the crankshaft of the machine so the die raised only one-eighth of an inch between each operation. It was impossible then for a finger to slip under the numbering die.

Accidents on this machine not only were prevented, but the operators, confident they could not hurt themselves, were able to speed production materially.

## Overseas Containers

Preservative treatment for the glue line and the wooden container itself was recommended at a recent meeting in Washington of the WPB sub-committee on new specifications for wooden containers for overseas operations. Dr. E. E. Hubert, wood technologist for I. F. Laucks, Inc., of Seattle was the coast member in attendance.



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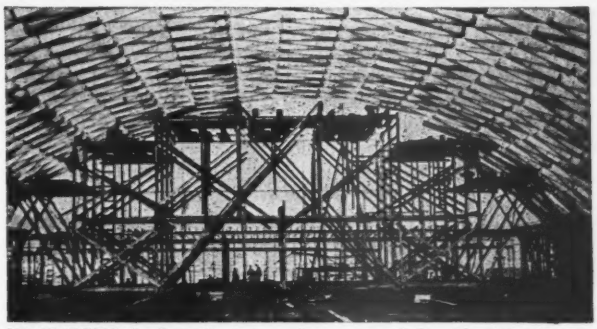

**IN 10 DAYS** the Lamella type roof was erected for this 100'x80' army sports arena. Designed by U. S. Engineers. Contractor: Henry Boyer Son & Co., Olympia, Wn.

**BY ADAPTING CUSTOMER'S EQUIPMENT** already on the premises—thus cutting waste motion and expense—the 46-94' trusses on this storag shed for Shevlin-Hixon Lumber Co., Bend, Oregon, were economically erected in a few days. Building designed and supervised by Gerry Horskotte, Shelvin-Hixon Engineer.

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# Western Rivers Fate Hangs in the Balance

**One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.**

*By* ARNOLD KRUCKMAN

WASHINGTON, D.C. — While this is being written, a number of the foremost men of the West are crowded into a room in the Senate Office Building and are making a very determined effort to check the drift towards the federalization of the waterways of the United States. In the group are the governors of Idaho, Wyoming, Montana, and South Dakota, as well as responsible representatives from every state of the Pacific Slope.

The issue, which came to the front in the discussions about the Rivers and Harbors Act, now is joined on the allied Flood Control Act. Both acts were passed by the House with a sharp defeat for those who championed the cause of irrigation, reclamation, power, and domestic use of the water as a prior right over transportation.

It is very likely those who are fighting for beneficial uses of the waters will also be defeated in this battle now waging. But those who were engaged in the fight will not forget that it was a fight; and they now know that the conflict will continue until the primary issue is settled.

The details involved in the Rivers and Harbors Act and the Flood Control Act—in combination the greatest pork barrel legislation ever launched in the United States—are simply the mask for the fundamental issue. In the end the stake is the destiny of all rivers and internal waterways of the United States.

The Corps of Engineers consistently and sincerely have postulated as a policy for years that our streams must be federalized. Beginning with Theodore Roosevelt, the reclamationists have insisted the western waterways must be dedicated to prior use for irrigation, mining, domestic uses, power and such beneficial uses as may support life. Concurrently the reclamationists have steadfastly maintained control of the uses of the water must be exercised by the states, not by the federal government.

The Flood Control Act, passed by the House, in effect places the ultimate control of the uses of the waterways under the direction of the Corps of Engineers. It does not define the policy clearly and specifically; it accomplishes the purpose by clever word architecture. Apparently, if the policy flowers into the bloom they have in mind, the Corps of Engineers will eventually have a complete over-all tight

*(Continued on Page 42)*

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Gentlemen:
Thank you for the cooperation and patience you have shown during these abnormal times. We have done our best to treat every one of you fairly.
There has been a great deal of bright talk about the wonderful new developments which await only the coming of Victory. Whether these innovations will make their appearance soon or late is pure guesswork. But there is one thing you can bank on—when new fixtures do appear, and they bear the Smoot-Holman mark, they will be good.
Sincerely,
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SIGHT-CRAFT
SMOOT-HOLMAN
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INGLEWOOD, CALIFORNIA

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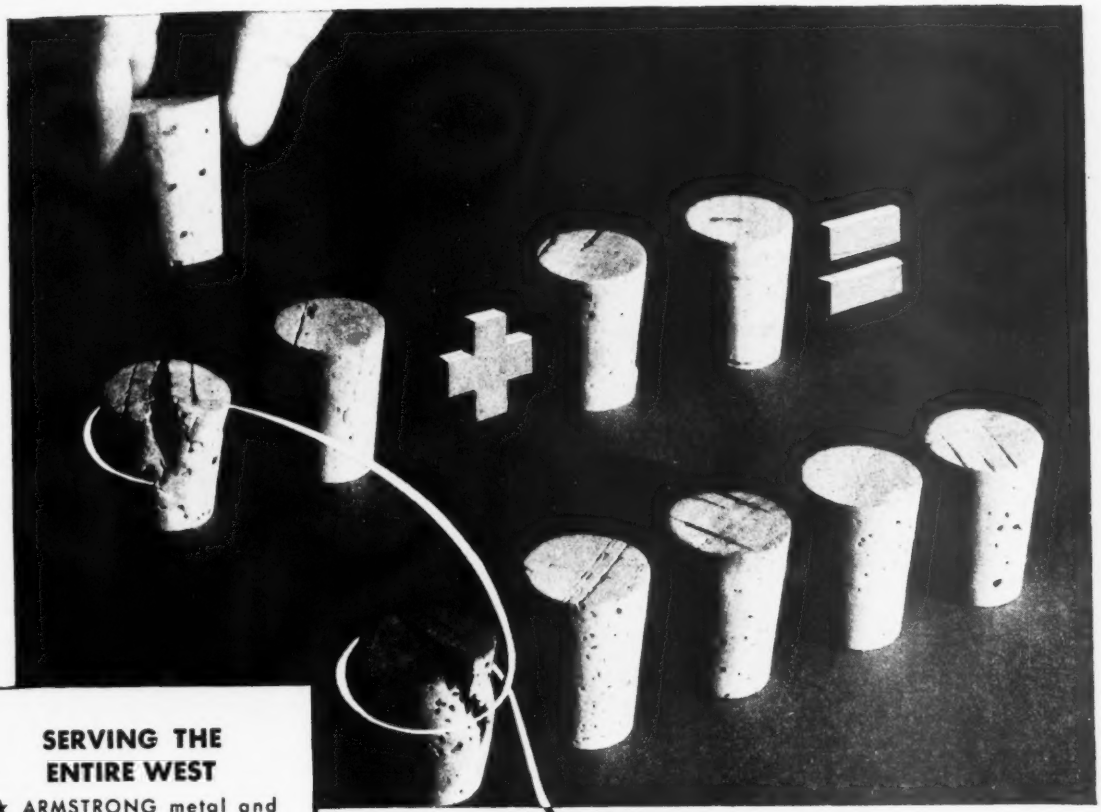

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- ★ DUPONT "CEL-O-SEAL" caps, opaque bands & "WIND-O-BANDS"
- ★ Bast & Wire Netting
- ★ Wire hoods & discs
- ★ Bung seals
- ★ Laboratory stoppers
- ★ Excelsior wraps for bottles
- ★ Capping & Corking Machinery.

**MOST COMPLETE LINE OF CLOSURES IN THE WEST.**

## when 1 Closure goes wrong

Just as one bad apple can spoil a whole bushel—imperfect closures can reflect on the quality and acceptance of any product. To give your product sealed protection that is lasting requires the perfect combination of quality closures, properly recommended and applied. Through I. F. Schnier Company you get both, plus more than thirty years of specialized experience in the packaging and closure field. Whenever there is any problem on closures, call I. F. Schnier for assistance.

SINCE IF 1909

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**KRUCKMAN** —*(Cont'd from Pg. 40)*
control over every trickle and rill in the United States.

As the drift now is tending, the Bureau of Reclamation would become a subordinate integration of the larger federal water-control system. The attractive phase of the federal control, to the superficial observer, is the apparent lack of cost to the individual. The Engineers naturally pay for the work they perform, with federal funds. The work performed under the Reclamation Act must be repaid by those whom it benefits.

The Corps of Engineers has moved along a clearly defined path for a number of years. It knows exactly where it wishes to go; and apparently it manages without much difficulty to take along whoever may be the contemporary Secretary of War. Those who should know, in responsible circles here, say that the Corps of Engineers have definitely not seen eye to eye with the White House for at least four years; and that the President himself believes the doctrines and policies of Theodore Roosevelt about reclamation and the uses of water under control of the states should be perpetuated. It is quite within the bounds of probability that the President may have made a clear declaration on the subject before this is published.

So far as the Bureau of Reclamation is concerned, the situation is further complicated by the federalization ideas of Secretary Ickes, who has brought all the influence of his office, and all the unusual energy of his personality, to bear in federalizing all the power projects of the West, whether they are independent enterprises or are part of the Reclamation Service.

Apparently both the Corps of Engineers and the Secretary of Interior believe that the principle of the TVA fits the phase of water or product of water in which they are separately interested, and that they feel that the tight system of control exercised by TVA over its section of the United States is the sort of control they wish to exercise over the waterways of the nation, and the power of the nation.

It is obvious this situation within the Department of the Interior shackles the Bureau of Reclamation, and explains why the Bureau of Reclamation the past decade has never been able to step into a fight that was its fight with the forthright assurance and bluntness which is the only background with which a fight can be waged.

### Help for Coast Plants

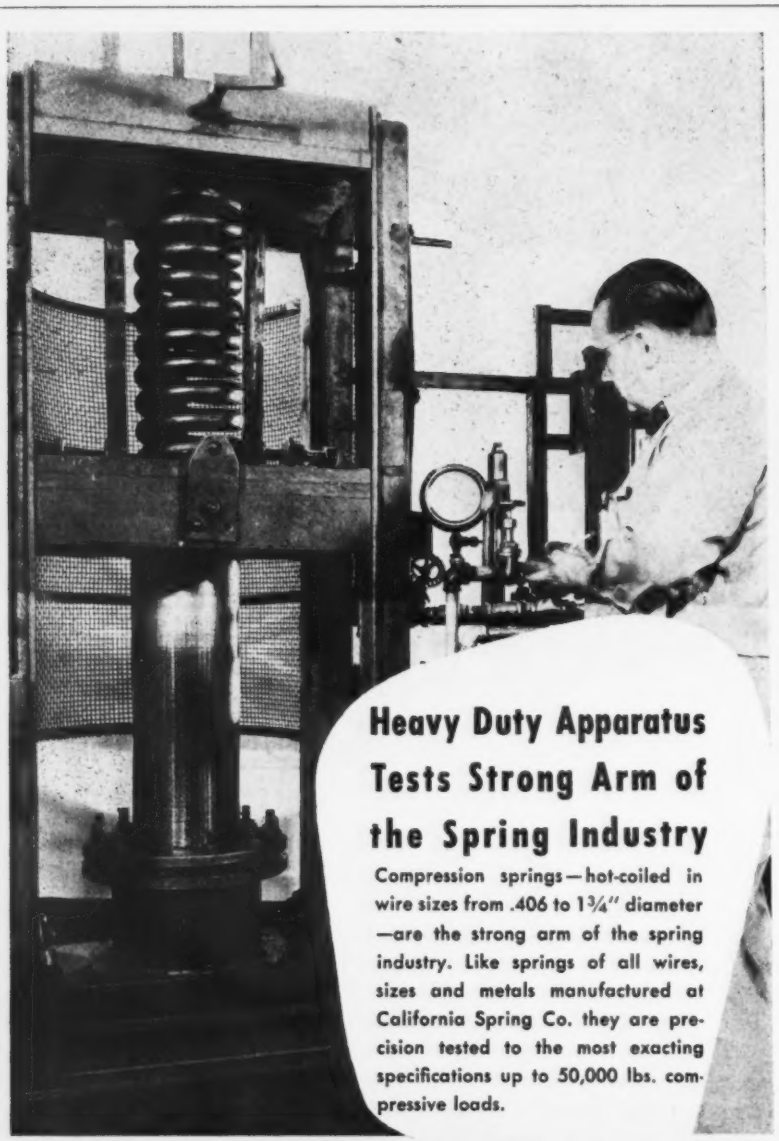
Maury Maverick, the pugnacious individualist from the cowbelt of Texas, who, like most individualists, strongly believes in individualism for himself and regimentation for others, told us the other day there are 6,000 smaller-business manufacturing plants in southern California, and that 3,000 of them may become very sick from malnutrition. He says something must be done about it, but he does not know exactly what to do.

As head of the Smaller War Plants Corporation, Maverick says he has done one service to southern California, and to other parts of the Pacific Coast, that is laudable. He induced Charles E. Wilson, who now is the power in WPB, to revoke parts of the Boulware Memorandum 42 which forbade plants in Critical Labor Areas 1 and 2 to make anything for civilian purposes, and which went to the extreme step of forbidding these plants the right of appeal from any ruling of WPB.

The memorandum was issued while Donald Nelson was away on a very hasty vacation, and constituted one of the moves in the campaign to unseat Nelson. The word came out after Nelson returned that the memorandum had been cancelled, but in essence it was still completely in effect until Maverick secured a modification.

Under Maverick's interpretation, any plant on the West Coast, employing 50 persons or less, now may manufacture anything for which it may secure materials and facilities. In other areas the limit has been set at plants which employ 100 persons or less. The memorandum apparently was originally devised with approval of the armed forces in order to nudge workers in

*(Continued on Page 44)*


Heavy Duty Apparatus Tests Strong Arm of the Spring Industry
Compression springs—hot-coiled in wire sizes from .406 to 1¾" diameter—are the strong arm of the spring industry. Like springs of all wires, sizes and metals manufactured at California Spring Co. they are precision tested to the most exacting specifications up to 50,000 lbs. compressive loads.
Spring Headquarters of the West since 1923
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# *"The Office Is Asking Why I'm Absent from Work"*

The Personnel Department is in hot water again! Somebody forgot to tell someone that Samson's new boss is Uncle Sam! What this department needs are some accurate personnel records . . . Uarco records, that tell the why, where, and when of company employees.

Uarco Personnel forms are scientifically designed for speed and convenience in record keeping. They eliminate waste time due to needless fuss and bother . . . with Uarco forms, you're ready to write. They increase convenience, for Uarco forms have all the vital information right on hand. And there are no errors caused by excessive recopying . . . one person at one time can make 7 or 8 or more clear carbons.

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**KRUCKMAN** —*(Cont'd from Pg. 42)*

smaller plants into the labor forces of the larger plants.

### One Alcohol Project Safe

Jack Underwood, the moving force in the program that is establishing a wood alcohol plant in Puget Sound, has managed to put enough fire under the powers that be to remove the obstructions in the way of the speedy building of the enterprise. As you know, recently the word went out that the alcohol wood conversion plants, apparently permitted in the Pacific Northwest, would have to wait, indefinitely.

WPB made the usual plea of lack of labor and lack of materials and the rest of the routine. It seemed very unlikely either the plant planned by the Puget Sound Pulp and Timber Co., or the plant up at Salem, Oregon, would come into existence during the war.

But they reckoned without Underwood. He has been in Washington since time out of memory, and he knows the ropes. For a while he patiently made pilgrimages to the various offices. However, when nothing happened except evasions and promises, he went down on the Hill and explained the situation to some friends in the Senate.

These friends separately rose on the floor of the Senate and explained the situation tersely and pointedly, mentioning that alcohol demonstrably can be made from sulphite liquid to sell at not more than 25c a gallon, while the armed services now are paying from 95c to $1.25 per gallon for alcohol made from wheat, corn, and sugar. They also explained that it apparently cost approximately 33c per gallon to convert the grain and sugar alcohol, while the alcohol could be converted from liquid sulphite and from wood wastes for not more than 10c a gallon.

It also was made clear that if the supply of alcohol is not increased from other sources, the armed services would be perfectly justified in taking over grain and sugar to meet any deficit that might appear imminent after Congress adjourns to attend the biennial conventions and to take care of their campaigns at home.

The logic of these reasons apparently were convincing to the WPB moguls, even though they came at long range from the floor of the Senate, and the way was quickly cleared for Underwood's alcohol plant in Puget Sound. It is now in process of construction. The foundation is down, and the plant may be ready for business by fall.

Those gentlemen who sponsor the Salem wood waste alcohol conversion plant also have friends on the Hill, and have discussed facts with their newspaper acquaintances in the capital, but apparently they have not yet decided to transmit the facts of life through public channels to those who delay them. At this writing the Salem plant still is an idea.

### Citrus Concentrates

We have had numerous brass hats from the citrus fruit conversion industry here the past weeks. Lemon oil is extremely short. The armed services apparently are taking all that is available. Part of the reason for the invasion from California the past few weeks was to find a way to provide more lemon oil for Americans.

The other part was due to the inability of the experts here and out there to find an acceptable definition of the term *concentrate,* which has a serious implication because a flavor has a price ceiling, while a concentrate has none. Apparently some of the producers on the West Coast made their own price ceilings on some of their products and justified their action in placing the product in the category of concentrates. OPA, however, does not seem to agree and has taken the matter out of the hands of the regional offices and ordered a survey of the whole problem on the West Coast.

One lesson to be derived from this incident is the fact that it is undoubtedly proper and correct to deal with the local offices of the government, but on large problems it also is wise, and probably safe eventually, at the same time to deal directly with Washington. There is no doubt that the difficulties of long range transmission of data and orders often increase the troubles of the local offices as well as of the local business men.


Colson MAKES IT EASY FOR *Women Workers* TO HANDLE HEAVY BARRELS AND DRUMS

IMAGINE a woman handling a 55 gallon drum almost as easily as pushing a vacuum cleaner. It's done with the Colson Drum Handling truck—the easy, safe way of handling barrels and drums of any size. Drums or barrels are placed on the truck without lifting—and unloaded just as easily. In pushing, the load is directly balanced over the wheels so that the heaviest barrels are moved with minimum effort. Handle is shaped to protect the operator at all times.

Instant adjustability of the hook permits handling any size drum or barrel from 24 to 40 inches high. Colson drum handling trucks stand upright when idle, taking up little floor space. The sturdy, all-welded steel construction assures long life under the hardest industrial use that is possible. These trucks can be supplied to those with proper priorities.

*COLSON is moving things more efficiently on every front!*

**COLSON EQUIPMENT & SUPPLY CO.**

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Material Handling Equipment

SKILSAW
Model "77"
It's the HANDIEST tool you can have for All HIGH-SPEED SAWING!
SKILSAW Speeds Metal Cutting In Production Work
• Cuts stainless steel faster . . . cuts copper sheets up to 5/8 in. thick . . . lead sheets up to 2 in. thick . . . saws channel steel up to 16 gauge and many types of corrugated metals.
SKILSAW Speeds Crating and Uncrating in Shipping Rooms
• Trims ends of crates in one quick cut. Ideal for uncrating because depth of cut is adjustable to prevent damage of contents. Goes right into freight cars to cut bracing lumber.
SKILSAW Speeds Maintenance Sawing Everywhere in Plant
• Rips out old flooring in a hurry . . . makes pocket cuts . . . grooves . . . speeds building of partitions, stairs, racks. Saves time on remodeling, with less delay to production.
• There are so many places around your plant where SKILSAW Model "77" can save time and money that you'll find it the best investment you could ever make.
On production work, SKILSAW Model "77" quickly cuts wood, sheet metal, plastics and compositions. In maintenance, it's the fastest, handiest tool for ripping up old floors, cutting lumber for bins and platforms . . . for cutting grooves for shelves. And in shipping or receiving rooms, SKILSAW Model "77" makes fast work of crating or uncrating without damage to contents.
This handy saw goes right to the job . . . saves time, material handling and money. It's light in weight, rugged, packs plenty of power for dozens of jobs in production and maintenance work. Ask your distributor to demonstrate SKILSAW Model "77" in your plant today!
PLANNING FOR AFTER-THE-WAR?
Let Skilsaw Field Engineers help you now to plan "tooling-up" for peacetime production with Skilsaw's new post-war tools.
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SKILSAW PORTABLE ELECTRIC TOOLS
MAKE AMERICA'S HANDS MORE PRODUCTIVE

# WESTERNERS AT WORK

**• TALKING OVER PRODUCTION PROBLEMS—Left to right, W. B. Macauley, chief engineer; G. H. Westerberg, plant superintendent; General Sir Walter Venning, director general of British Ministry of Supply Mission; and Charles M. Romanowitz, manager, Ordnance Project Department, discuss the 155 mm. howitzer tube around which the 155 mm. howitzer is being built at the Yuba Manufacturing Company, Benicia, California.**

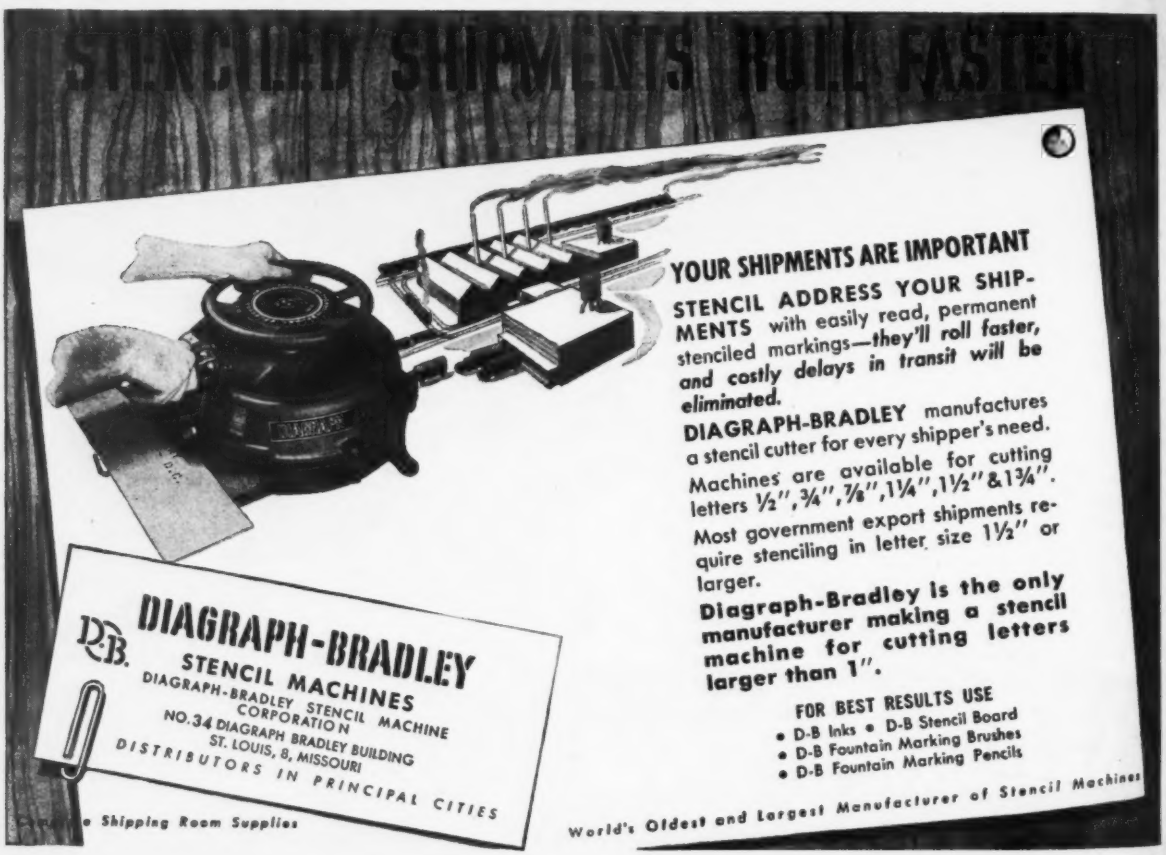
### Arizona

John A. Richards, assistant manager for Mammoth-St. Anthony, Ltd., Tiger, Arizona since 1941, now general manager of company's operations, filling vacancy caused by death of James L. Fozard.

### California

Albert M. Dunfee comes to the San Francisco Chamber of Commerce from San Francisco Regional Office of the National Housing Agency as assistant manager of the Chamber's Industrial Department. . . . William A. Bledsoe, regional price economist, formerly in charge of price branch of Bureau of Labor Statistics, now named regional director for California, Oregon, Washington, Nevada and Arizona, coinciding with establishment of a new regional office in San Francisco. . . . Justin Gleichauf, specialist in business research and foreign trade, appointed to staff of world trade department of Los Angeles Chamber of Commerce. . . . A. J. Donnelly named industrial relations director of General Petroleum Corporation, working directly under S. J. Dickey, company president. . . . V. A. Bellman of the Washington state division steps into Donnelly's shoes as northern California resident manager of marketing department. . . . George M. Betterton of San Francisco, on leave of absence from his post as general purchasing agent for Southern Pacific Railway, appointed Manager of Transportation Equipment Division for War Production Board in Washington, D.C. . . . Arthur J. Grier of Oakland, well-known member of the American Society of Mechanical Engineers, appointed District Manager of Production Service Division of WPB in San Francisco. . . . H. D. Collier, president of Standard Oil Company of California,

*(Continued on Page 48)*



STENCILED SHIPMENTS ROLL FASTER
YOUR SHIPMENTS ARE IMPORTANT
STENCIL ADDRESS YOUR SHIPMENTS with easily read, permanent stenciled markings—they'll roll faster, and costly delays in transit will be eliminated.
DIAGRAPH-BRADLEY manufactures a stencil cutter for every shipper's need. Machines are available for cutting letters ½", ¾", ⅞", 1¼", 1½" & 1¾". Most government export shipments require stenciling in letter size 1½" or larger.
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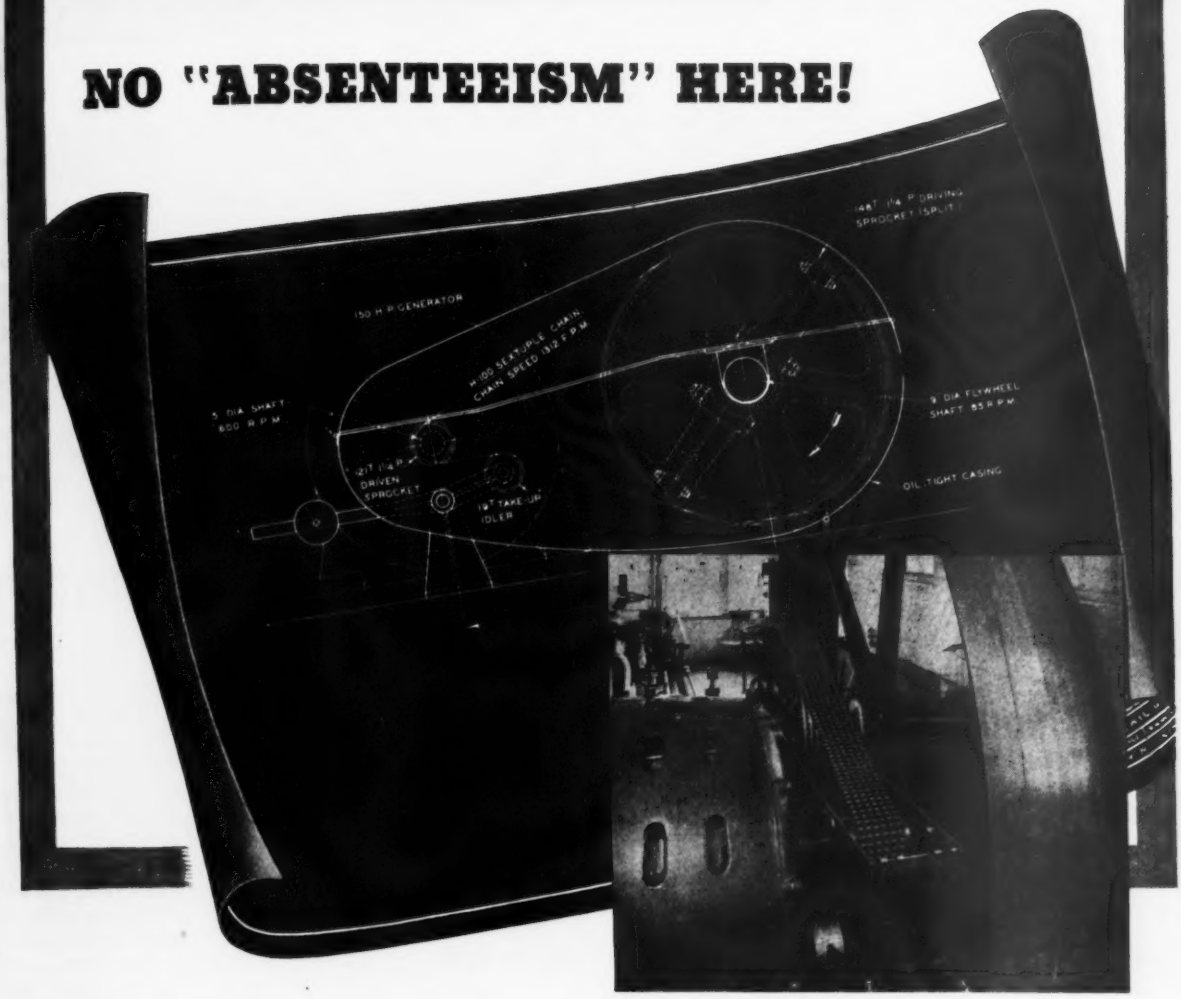


600,000 miles . . . *the equivalent of 25 trips around the world . . . that's the distance this chain has traveled with no "time out" for repairs. It's been operating for almost 7 years, yet not one link has been removed . . . "stretching" has been less than nominal.*

THE "success" story of this sextuple roller chain Generator drive is typical of Baldwin Roller chain belts. The drive was designed for 150 H.P. but has delivered up to 200 and has been in constant operation since its installation. And outside of periodic lubrication, the drive has required no attention throughout this operating period.

The positive grip of Baldwin Roller chain belts . . . their ability to absorb shock loads . . . the low maintenance and quiet operation that proved so valuable here can help you. For Baldwin Roller chain belts give you these advantages:

1. **Long, trouble-free service**
2. **High shock-absorbing ability**
3. **Easy, simple installation**
4. **No deterioration from oil and grease**
5. **No power loss—with or without adjustment**

For complete information on Baldwin Roller chain belts and how they can help you cut power transmission costs, call your Baldwin Man or write for your copy of Catalog M. Baldwin-Duckworth Division of Chain Belt Company, 352 Plainfield Street, Springfield 2, Mass.

**BALDWIN**
**ROLLER CHAIN BELTS**

**WESTERNERS** —*(Cont'd from Pg. 46)*

and Charles Kendrick, president of the Schlage Lock Company, elected to board of directors, United States Chamber of Commerce. . . . A. J. Johnson, head of the engineering department, elected vice-president of the Shell Development Company. . . . G. C. Woodward, formerly secretary, Ryan Aeronautical Co., San Diego, is now vice-president, secretary and assistant treasurer. . . . C. E. Matkin appointed general superintendent of Northern Redwood Co., Korbell. . . . Frank C. Fraser, logging superintendent, has resigned and Mr. King, formerly of the Pacific Lumber Co., takes his place. . . . William F. Smidt, former assistant secretary of Hogan Lumber Co., Oakland, appointed assistant manager of Meadow Valley Lumber Co., Quincy. . . . Bert Slack of Lakeview, Oregon, is superintendent of Mt. Hough sawmill of Calvada Lumber Co., Quincy. . . . Snowden G. Sargent, one-time state superintendent of banks in Oregon, appointed regional loan agent of the Smaller War Plants Corporation in the 10th district. . . . H. M. Bateman elected vice president of Peerless Electrical Products Co., Los Angeles. . . . Mrs. Estelle M. Aalberg, secretary-treasurer of Peerless and wife of company's president, Major John O. Aalberg now on active duty, also elected vice president; Eugene M. Keillor, formerly of Anaconda Wire & Cable Co., appointed head of design department.

*Man-Power is our "Bottle-Neck"*

. . . just like it is with you, in fact all industry. We have added to our plants and the wheels are turning as fast as man-power will permit. Fully appreciating that vital chemicals may be your bottle-neck, we are constantly re-arranging deliveries, trying to help everybody. You have been very co-operative and have helped us a lot. So we will continue to serve you to the best of our ingenuity and if old man "Bottle-Neck" pictured at the top will only loosen up a little, we will serve you even better.

Stauffer
SINCE 1885

STAUFFER CHEMICAL CO.


**Montana**

P. B. Wickham reported to be new manager of the Jardine Mining Company at Jardine, Montana. . . . W. A. Hax of Jardine is resident and general manager of the company.

**Oregon**

Leslie E. Deal, new purchasing agent of the Pacific Machinery and Tool Steel Company in Portland, formerly with Morrison-Knudsen Company, Inc.

**Utah**

Ab Jenkins, former mayor of Salt Lake City, now assists Colonel Harold J. Conway, Service Command Ordnance Officer, as an expert consultant in Colonel Conway's program of military vehicle conservation. . . . Stanley J. Stephenson, executive secretary of Utah Manufacturers' Association, named association manager by organization's directors, and has resigned his membership on the regional war labor board.

**Washington**

Henry J. Gille after 31 years of service retires from the Puget Sound Power & Light Company.

**Associations Elect**

Newly organized Portland-Vancouver chapter of the American Welding Society elected Elmer Hann, Swan Island superintendent, chairman.

The San Francisco Post of the Army Ordnance Association elected Raymond C. Force, director of Caterpillar Tractor Co., president. He succeeds Roland Oliver, president of California Cap Co., who held office for nine years. New vice-presidents are: Charles Kendrick, president of Schlage Lock Co., and Charles Moore, president of the Joshua Hendy Iron Works and Moore Machinery Co. Colonel Dean Witter has been named San Francisco representative on national board of directors, and Capt. Ivor deKirby, secretary-treasurer.

Canners League of Califorina have elected the following officers: H. E. Gray, president; executive vice-president, Preston McKinney; A. W. Eames, W. S. Everts and M. A. Clevenger, vice-presidents; A. R. Plummer, treasurer, and Sylvia Kempton, secretary.

Willamette Valley Lumbermen's Association re-elected C. Ward Ingham, Glendale, president; Guy Haynes, Carlton, vice-president; Frank A. Graham, Jasper, treasurer; H. J. Cox, Eugene, sec'y-manager.

Electronics group names officers: H. L. Hoffman, president of the West Coast Electronic Manufacturers Association; Jack Kaufman, vice president; Herb Becker, secretary, and Howard Thomas, treasurer.

Boulder Dam Section has received a charter from American Chemical Society. H. C.

*(Continued on Page 50)*

# Packhorses

## FOR PRODUCTION AND MAINTENANCE

Webster says a packhorse is "a horse used for transporting packs of goods." Once we were dependant upon them exclusively. Now on the land, sea, and in the air man has fashioned a network of supply lines through which flow production goods that are the life blood of our America in Peace or War.

There's something behind all of this . . . the part we call materials-handling. This is the unmentioned phase of tremendous importance. Materials must move into and through production and finished goods pass on into the arteries of transportation. Here the caster is the packhorse. Like its predecessors it takes the brunt of the burden and works steadily under heavy loads.

Aircrafter casters are "Steel-Forged" for strength with top plate and king pin made in one solid piece. The double row of swivel ball raceways are exclusive Rapid-Flame Hardened reducing friction at the point of greatest wear. This means longer life and easier swiveling.

For trouble free operation and effortless moving specify rugged Aircrafter casters for your production and maintenance packhorses. Aircrafters roll heavy loads faster and easier . . . longer.

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Portland, Oregon

**Murray Brokerage Company**
A. Wazee Market
Denver, Colorado

**WESTERNERS**—*(Cont'd from Pg. 48)*

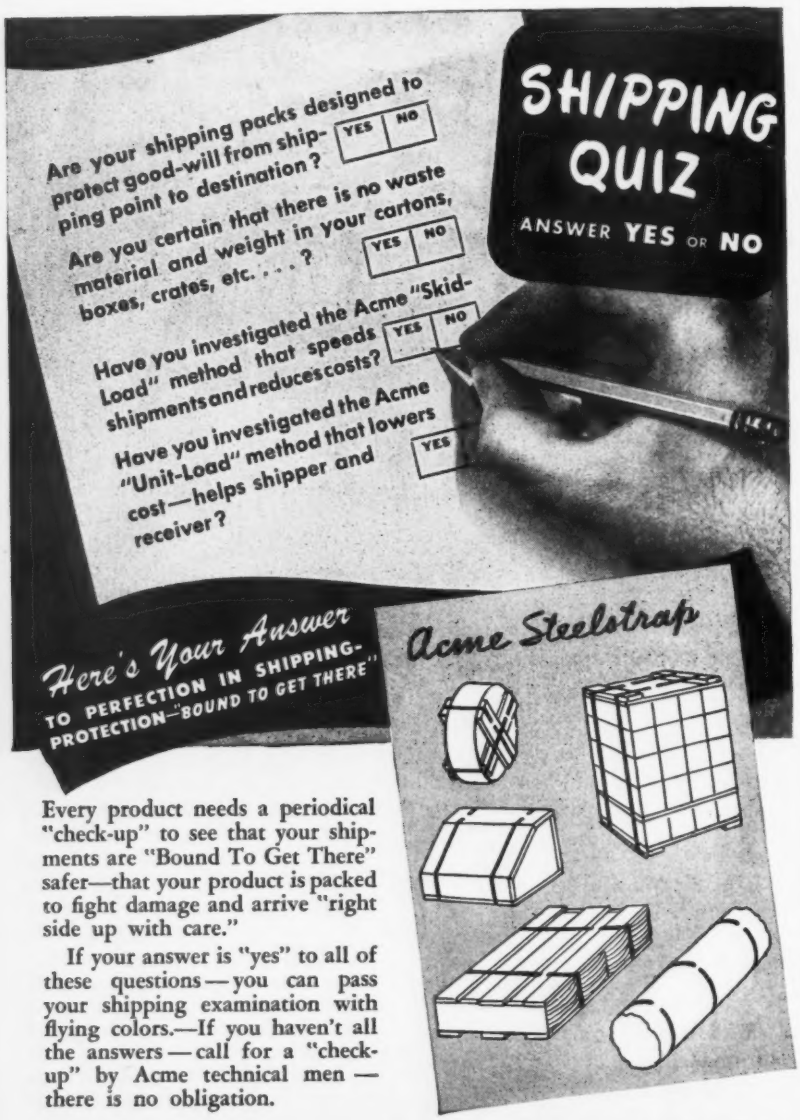
Lee and 20 other BMIers formed the section in cooperation with men from Manganese Ores and the Bureau of Mines . . . elected Hillard Smith, chairman; C. K. Stoddard, vice-chairman; John M. Hiegel, secretary and Pete Fitchett, treasurer.

Nevada Section of the American Institute of Mining Engineers . . . newly organized sub-section elected H. D. Satterthwaite, chairman, and Clyde F. Keegel, secretary.

American Zinc Institute elects R. B. Caples, manager of Great Falls reduction department of Anaconda Copper Mining Co., vice president.

At the annual convention of the New Mexico Miners and Prospectors Assn., Horace Moses, general manager of the Chino Mines at Santa Rita, was elected president, taking over from F. O. Davis of Carlsbad . . . officers re-elected, Carl S. Elayer, Silver City, first vice president; John Carman, Questa, N. M., second vice president; Richard Twiss, Vanadium, treasurer, and Albert P. Mracek, Silver City, sec'y.

National Aircraft War Production Council, Inc., elected Victor Emanuel, president of Aviation Corp., president; J. H. Kindelberger, president of North American Aviation, Inc., vice president.



SHIPPING QUIZ
ANSWER YES OR NO
Are your shipping packs designed to protect good-will from shipping point to destination? YES NO
Are you certain that there is no waste material and weight in your cartons, boxes, crates, etc. . . . ? YES NO
Have you investigated the Acme "Skid-Load" method that speeds shipments and reduces costs? YES NO
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Here's Your Answer
TO PERFECTION IN SHIPPING-PROTECTION—"BOUND TO GET THERE"
Acme Steelstrap

Every product needs a periodical "check-up" to see that your shipments are "Bound To Get There" safer—that your product is packed to fight damage and arrive "right side up with care."

If your answer is "yes" to all of these questions—you can pass your shipping examination with flying colors.—If you haven't all the answers—call for a "check-up" by Acme technical men—there is no obligation.

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## Utah Compensation Rates Are Lowered

Lower workmen's compensation rates have been adopted in Utah which will be an average of 18 per cent for 320 classes of employment. Increased rates will be made in seven classes, while in 51 there will be no change.

Rate changes per $100 pay roll were as follows: Demolition of buildings, $43.09 to $37.54; clerical office help, .10 to .07; underground metal mining, $8.71 to $7.49; plumbing, 1.96 to $1.50; electrical work, $2.44 to $2; cement work, $10 to $6.50, carpentry, $4.41 to $3; road construction, $5.30 to $3.98; masonry, $4.41 to $4.30; iron and steel erection (not otherwise classified), $20 to $15; pile driving, $15 to $10; drilling (not otherwise classified), $7 to $4; excavating, $7.18 to $6.50; tunneling, $10 to $9; department store, 57 to 50 cents; stores (not otherwise classified), $1 to 70 cents; auto repair shops, $2.91 to $2.32; outside salesmen, messengers and collectors, 53 to 43 cents; teachers, 28 to 22 cents, while newspaper mechanical department employes remained the same at 90 cents.

Coal mining rates remained the same at $10 while the rate for salt manufacturing jumped from $2.75 to $3; for chauffeurs and helpers, from $1.77 to $1.80, and restaurants from $1.77 to $1.80.

## Tungsten Plant Built at Boise

A tungsten concentrate purification plant being established at Boise, Idaho, to handle high grade concentrates produced at Stibnite by the Bradley Mining Company will bring to the West an operation formerly performed in the East.

The plant will have a monthly capacity of 300 tons. Hydrochloric acid shipped from San Francisco will be used to convert the concentrate as it comes from the mill to the approximately 75 per cent tungsten oxide required to meet individual specifications of customers in the steel, electronic and other war industries.

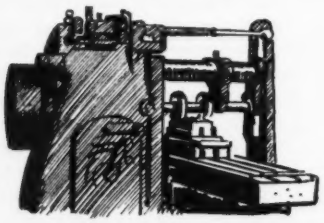
A pilot plant will be established by the company at Stibnite for smelting of gold, antimony and silver concentrates, handling one ton a day, and plans are being made for constructing a smelter at the mine.

## Search for Iron Ore

A government appropriation of $100,000 for investigating iron ore deposits in New Mexico next year is being sought. This year's allocation was $30,000. Investigations next year, according to John M. Kelly, director of the State Bureau of Mines, will embrace iron ore deposits near Silver City and in southern New Mexico near El Paso; four fluorspar deposits, one near Grants, two near Deming and one near Silver City; and one coking coal deposit near Carthage.

# Increase production with the *right* cutting oil!

Nowadays, with time the essential factor in production, cutting speeds have been increased to keep step with the tremendous demands of wartime manufacturing. Higher speeds mean greater vibration and heating and a new emphasis has



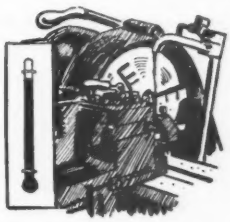
been placed on cutting oils that will prevent welding and seizure of chip and tool.

Recognizing these war demands, Union Oil Company has placed on the market an improved line of cutting oils, designed to meet every need of the machining world.

Whether you turn the softest magnesium or ream the toughest steels, there is a Union Cutting Oil which will help speed up your production. Their high film strength and extreme pressure characteristics permit faster cutting speeds and give longer tool life.

Union Cutting Oils are noncorrosive and completely sterile. They maintain excellent wetting conditions with good penetrating properties, allowing a cooler job and better surface finishing.

If you want cutting oils that are designed to do the toughest war job—and if you like to buy from a single source—phone a Union Oil Resident Manager in any of the five Western states, or write Union Oil Company, 617 W. 7th Street, Los Angeles 14, California.



Union Oil Company—maker of 492 quality products—is the largest independent oil company in the West.

**UNION**
**CUTTING OILS**

Another
**UNION OIL**
*Success-Tested Product*

## NEW PLASTIC-TIPPED MALLETS

NON-SPARKING — NON-MAGNETIC
FOR USE IN AIRCRAFT AND WAR INDUSTRIES

• Every War plant needs SOUTHWEST Plastic-Tipped Mallets. They can be used for sheet metal work, radio, electrical work, caulking, lamination, upholstery, and assembly work of all kinds. They can also be used on metal and plated surfaces without any damage to the material. Extra tips are immediately replaceable by hand because they are threaded.

*WRITE FOR FURTHER INFORMATION*

**SOUTHWEST MFG. CO.**

1615 EAST FIRST ST., Dept. W-6 — SANTA ANA, CALIF.
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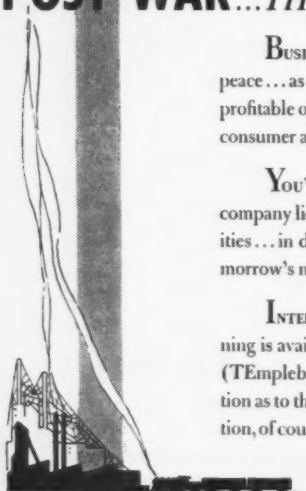
## POST WAR...*THREAT OR OPPORTUNITY?*



BUSINESS-WISE, how do *you* look forward to the day of peace... as a threat to your present business volume, or as a profitable opportunity to share in the vast market for civilian consumer and industrial goods and services.

YOU'RE CORRECT, either way. But the future of your company lies in preparing *now* to grasp peacetime opportunities... in developing sound, practical plans for serving tomorrow's market wisely, well and *early*.

INTELLIGENT HELP from men experienced in such planning is available to you, immediately. A letter or phone call (TEmplebar 0363) will promptly bring you full information as to the scope of our services and their cost. No obligation, of course. But for your sake and ours, will you *do it now?*

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*ADVERTISING MANAGEMENT AND SALES DEVELOPMENT*
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### Negotiation For Surplus Property

Direct negotiations will be the government's method of distributing most of its surplus, according to F. G. Moyer, chief of the treasury's property utilization division at San Francisco. Writing to the San Francisco Chamber of Commerce, he says:

"It has been customary, heretofore, to publicly advertise surplus items with the award being made to the highest bidder. However, with the exception of items which may be categoried as junk, obsolete, or properties requiring major repair, there will be very few instances in the future in which these surpluses will be sold by competitive bid, since it is our desire to move all such surplus properties, which are not required by federal agencies or tax-supported institutions, into normal channels of distribution, and this objective, we believe, can and will be attained through direct negotiation rather than the former method.

"It is our hope that, in this manner, we will be able to develop and maintain a steady flow of governmental surpluses into normal trade activities, wherein absorption of the various commodities have a beneficial rather than an inflationary effect upon the civilian economy.

### Gas Heating Is Declared Superior

Portland's gas plant, representing an investment of some $7,000,000, can turn out as many heat units in a day in the form of gas and by-products as the entire $100,000,000 Bonneville Dam, according to F. A. Allen, supervisor of the American Gas Association's Los Angeles research laboratory, speaking at the Pacific Coast Gas Association convention in Portland last month.

"Gas has a tremendous advantage over electricity for house heating, even where electric rates are as low as they are in the Pacific Northwest," according to Allen.

"Seasonal peak demands that would swamp an electric system are taken in stride every winter by our gas companies because gas constitutes such a flexible vehicle for storing and transporting heat energy," he continued.

"If you were offered electricity free at the generating plant you still couldn't afford to make the investment necessary to carry it to the home and sell it for heating in competition with gas."

### Plastics and Plywood

A joint meeting of the Pacific Coast Section of the Society of the Plastics Industry with the Douglas Fir Plywood Association will be held in Seattle June 29. The coast section began its activities in southern California, but now has representation from each industrial region of the Pacific Coast on its board of directors. Warren L. Nehm of the Remler Company is the San Francisco Bay area member.

# Your Costs go down— when loads travel in BOXES · BARRELS · BAGS · BALES

*—planning becomes easy— with the E-P Man to Help as Transportation Advisor*

"Kinks" at critical points in the flow of your materials can block your economy program. Your nearby E-P Man will help you to do these simple but vital things to aid in breaking the jam:—

1—Adapt all of your materials to standard, easily-managed Boxes, Barrels, Bags, Bales. 2—Assemble them in big, oversize Unit Loads on Pallets or Skids. 3—Speed them *in volume* through every department on your Elwell-Parker Power Industrial Truck *System.*

It's easy—and practical—with the E-P Man serving you as Transportation Advisor. Because after more than 35 years, Elwell-Parker still is finding *new* ways to handle Industrial Loads in bigger volume—safely—without waste—for less money.

Send for the E-P Field Engineer today—take him fully into your planning for future economies in manufacturing and distribution. The Elwell-Parker Electric Co., 4175 St. Clair Ave., Cleveland 14, Ohio.

**Modern pallet systems high-tiering big unit loads of Boxes—Barrels—Bags—Bales in warehouse, terminal and stores service.**

**San Francisco IRA G. PERIN**
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# ELWELL-PARKER
## POWER INDUSTRIAL TRUCKS

# Reckoning War Plants Depreciation

ATTENTION was called to the danger of war contractors failing to present their depreciation charges properly in renegotiation and termination proceedings in a talk by A. B. Hossack, executive vice-president of the American Appraisal Company, on "Plant Asset Accounting" before the San Francisco chapter, National Association of Cost Accountants, on Tuesday, April 25. He and Alexander J. Lindsay of Denver, national vice-president of the association, were on a coast tour, visiting war plants.

"Some contractors who are presenting depreciation for tax purposes as their allowance for costs are not including a proper amount for the proportion of the property costs used up in producing the war output," he said, in pointing out that depreciation is an allowable cost in presenting renegotiation and termination data.

"Probably one of the questions most frequently asked me at present, for companies on war work, is as to the possibility of accelerating depreciation due to present increased production.

**Post-War Property Accounting Problems—Predicted by Mr. Hossack**

1. Segregation of the cost of surplus facilities and their charges.
2. What depreciation is proper as an element of cost for facilities acquired under necessity certificates, the cost of which it is anticipated will be fully recovered for tax purposes?
3. The equalization of depreciation charges for departmental costs.
4. The proper charge for the use of facilities that may be purchased from the government at a fraction of their original cost or of the then cost of replacement new.
5. What rate of depreciation is proper for the reduced operations?
6. If deferred maintenance is made good, what portions should be expended, capitalized or charged to the reserve? You may not have operating profits to absorb the expense charges, and the carry back and carry forward provisions of existing tax laws may be changed.
7. Should certain facilities be sold or scrapped, and what will be the effect on tax liability if so handled?
8. Should surplus Government facilities be acquired for probable post-war production requirements, or are they expensive at any price?

"I am of the opinion that for many lines of business, there is no question but that some adjustment from a straight line depreciation calculation is proper during periods of increased operation, as well as during periods of decreased operations, and that within a few years some method of production adjustments of annual depreciation will be more or less generally adopted in many industries. Such adjustments will give weight to both factors of depreciation which vary with the use of equipment and also to factors such as obsolescence, which are usually computed on a time factor rather than the amount of use.

"The mere fact that retirement history indicates that the average life of equipment in a particular plant is 20 years, does not mean that the depreciation has actually occurred in equal amounts of five per cent during each of the 20 years. It may well have been 7½ per cent or 10 per cent in one year, and 2½ per cent or 3 per cent in others, and still the average life has been 20 years.

"Also the fact that maintenance and repair increases or decreases more or less in direct proportion to the amount of use of equipment, does not mean that maintenance and repair is compensating for the additional or decreased use of equipment. Of course, maintenance and repair costs go up with added hours of production, but there is also depreciation occurring that is not made good by such maintenance and repair expenditure if consistent accounting policies are followed.

*(Continued on Page 56)*

U. S. ARMY SIGNAL CORPS PHOTO.

NO picnic, this! . . . but a grim game of kill or be killed on enemy shores. While the fighting rages, PAYNE must bend every effort to help win. But after victory, we'll turn again to furnaces, featuring . . .

*Payne* ZONE-CONDITIONING

Post-war successor to old-fashioned central heating. ★ Healthful circulation of fresh air, gas-heated in winter; cooling, refreshing in summer . . . *controlled by zones or individual rooms.* ★ Meanwhile, let's back our boys on the beaches with *everything.* ★ Let's buy more Bonds.

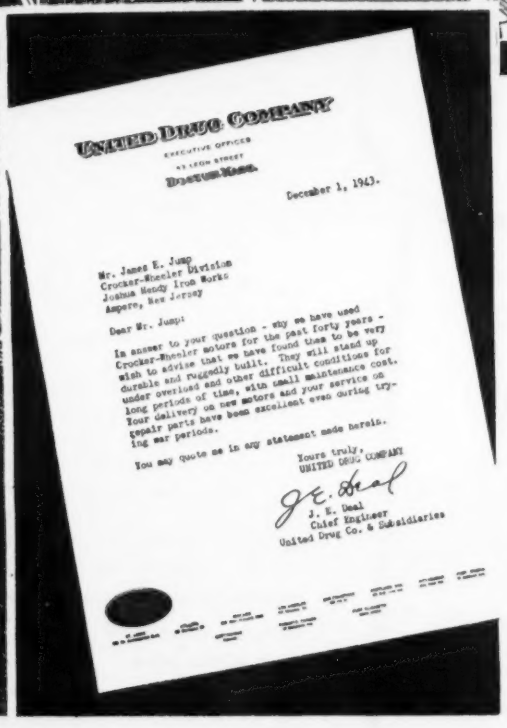
PAYNEHEAT

NEARLY 30 YEARS OF LEADERSHIP

*Payne* FURNACE & SUPPLY CO., INC.

BEVERLY HILLS, CALIFORNIA

Composite picture, showing United Drug plants in U. S.



UNITED DRUG COMPANY
EXECUTIVE OFFICES
85 LEON STREET
BOSTON, MASS.

December 1, 1943.

Mr. James E. Jump
Crocker-Wheeler Division
Joshua Hendy Iron Works
Ampere, New Jersey

Dear Mr. Jump:

In answer to your question - why we have used Crocker-Wheeler motors for the past forty years - I wish to advise that we have found them to be very durable and ruggedly built. They will stand up under overload and other difficult conditions for long periods of time, with small maintenance cost. Your delivery on new motors and your service on repair parts have been excellent even during trying war periods.

You may quote me in any statement made herein.

Yours truly,
UNITED DRUG COMPANY
J. E. Deal
Chief Engineer
United Drug Co. & Subsidiaries

## CROCKER-WHEELER POWER for UNITED DRUG

United Drug . . . the world's largest manufacturers and distributors of drug store products . . . use hundreds of Crocker-Wheeler motors and generators, for many different kinds of jobs.

And so do scores of other leading concerns. For Crocker-Wheeler motors and generators have stood the acid test of time. They have had an unequalled reputation in industry, for durability and trouble-free operation for over 50 years.

Now . . . when your post-war plans are being formulated . . . is the time when the C-W field engineer can help the most. A meeting involves no cost or obligation.

When more than just power is required, the general purpose, direct current motor is in general use. Speed adjustment for optimum production . . . controlled acceleration and deceleration . . . rapid, drastic and wide speed changes. All these are possible at minimum expense, with the general purpose DC motor.

**CROCKER-WHEELER DIVISION**

# JOSHUA HENDY IRON WORKS

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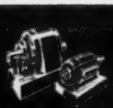
*Hendy Products*



MOTORS & GENERATORS
CROCKER-WHEELER DIVISION

TURBINE UNITS
POMONA PUMP DIVISION

PUMP UNITS
WESTCO PUMP DIVISION

STEAM TURBINES, DIESELS
JOSHUA HENDY DIVISION

**DEPRECIATION** *(Cont'd from Pg. 54)*

"For proper determination of costs of production, it is my opinion that depreciation should be computed based upon the best estimates of the actual portion of the cost used up in production. This depreciation should, I believe, reflect not only wear and tear from the use of the assets but normal obsolescence as well. The proper depreciation, in my opinion, is of course dependent on the company repair and maintenance policies, the policies in expensing or capitalizing replacements and to the extent and character of use of the respective assets.

"It is my belief that the basic factors affecting the amount of depreciation allowable in a certain accounting period are the same for either cost accounting or for income taxation, although the dollar amount may vary, depending on the remaining cost to be recovered. Incidentally, I mention, if the depreciation deducted in past years was that properly allowable, there should be no difference in the depreciation allowance for the two purposes."

Predicting a change from the trend in the last decade to use tax depreciation as the charge into cost of production, he asserted that depreciation as an element of cost for renegotiation and for contract termination has one factor in common with that allowable for income and excess profits tax, namely, the base, which is in both cases, original cost of the company.

"For tax purposes, your allowable deduction depends on the balances to be recovered," he said. If you have depreciated excessively for tax purposes in the past, then your allowable deductions in the current year are reduced. You may not be entitled to any depreciation for tax purposes on some of your property if your costs have been fully recovered through price deductions claimed and allowed, even though such facilities are used in producing your income.

"It is recognized, however, as an element of cost, that a proper amount of depreciation is applicable computed on original costs on all property used in making the products of manufacture. I believe also, that for purposes of determining costs of production a more practical view point is adopted as to the effect of multi-shift operations in shortening the useful life of the production facilities. In other words, the administrative personnel is more practical than the audit procedure of the Treasury.

"There is one further departure in tax deductions and those allowable for costs, namely the emergency facilities which may be amortized for taxation over 60 months are only included in costs of production at proper depreciation rates including acceleration where warranted.

"I recommend that you give careful consideration in determining your production costs as to the depreciation properly allowable and incorporate such charges in your cost compilations even though they are reversed and reconciled for tax purposes. While the additional amount may be small in relation to total cost, still it may result in offsetting other items disallowed for cost purposes that are allowed for tax purposes and thus result in a somewhat larger net amount than can be retained for post-war requirements."


# Does Your Fire Hose need Replacing?

The supply and quality of synthetic rubbers compounded at Pioneer have progressed to a point that long-lasting synthetics are now adaptable for use in high grade fire hose. Double jacket, as well as single jacket hose is now available.

Pioneer production facilities now permit us to serve your requirements as well as produce for the Armed Services.

Check your hose needs. Prompt delivery can be made. PIONEER RUBBER MILLS, 353 Sacramento Street, San Francisco 11, California.

***Branches and Distributors throughout the West***

**BELTING • HOSE • PACKING**

**PIONEER**

*Job Tailored* **INDUSTRIAL HOSE**


### Helping Women Also Helps Men

Improved conditions in industrial plants due to increased employment of women have, in many instances, reacted to the benefit of men also, the California Industrial Welfare Commission reports, adding:

"This is particularly true of the required ten-minute rest period. Most industries have found it more practical to shut down the plant for ten minutes, than to have staggered relief periods.

"Those following this procedure concede that work is accelerated on the second half of the shift. Requirements for adequate rest rooms for women have brought to the attention of management the importance of providing proper facilities for all employees."

### Freezing Foods In Flying Not Simple

Long before Glenn L. Martin crashed the front pages last month with a prediction that in the future frozen foods would get their freezing in the sky through the intense cold encountered in the stratosphere, various people have talked about it. Professor Sleeter Bull of the University of Illinois discussed it at the wartime conference of the National Frozen Food Locker Association at Des Moines last September.

But there is a lot more to it than merely lifting a load of peas or berries up several thousand feet in the air. Not the least of the questions involved is the fact that crops will mature according to nature's time schedule, and must be converted from raw material into a processed product on a closely maintained time schedule and with protection against deterioration or spoilage on the journey from field to package as well as thereafter.

"Whether a schedule of take-offs for purpose of freezing as well as transporting foods can be maintained with respect to environmental factors is one of the questions involved," says H. C. Diehl, director of the Refrigeration Research Foundation, Inc., of Berkeley, who had more to do with development of frozen foods in the Pacific Northwest than any other one individual.

"Whether such transport could be interrupted by unforeseen incidents and the product still remain protected, as it must be, whether these measures for product protection or schedule maintenance would be overly costly, are a few of the others . . .

"I am sure an eminent aeronautical engineer such as Mr. Martin has recognized these facts when he makes his most intriguing and stimulating suggestions. He is the type of pioneer, I believe, who would accept the challenge."

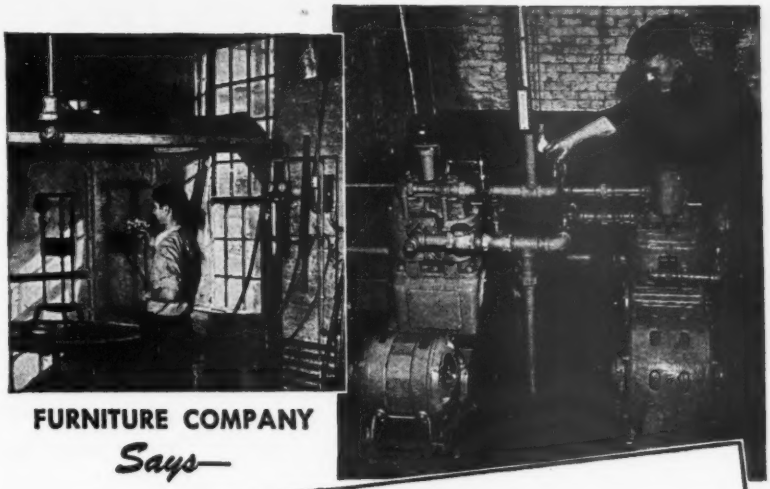
### 15,000,000 for Reefers

Expenditure of nearly $15,000,000 during 1944 for new refrigerator cars and repairs to its present rolling stock has been authorized for Pacific Fruit Express Company by its joint owners, Southern Pacific and Union Pacific railroads.

The program provides for purchase of 1000 new cars at an estimated cost of about $5,500,000. It is hoped that delivery of much of this new equipment for transportation of perishable shipments will be completed this year to help handle an expected increase over PFE's all-time record of 411,000 cars loaded in 1943.

### Children's Garments

Acute shortages of children's clothing in Coast stores and elsewhere is the reason for WPB offering priority preferences in a national program for making 2,071,000 dozen cotton garments covering 45 items in the next three months.

FURNITURE COMPANY *Says—*

"Air From CURTIS COMPRESSORS Is Vital to the Operation of Our Plant"

★This company uses air profitably for a variety of important operations; to start Diesel Engines; to operate from one to five spray booths; blowing chips from machinery; driving sanding machines, operating air lifts; etc.

C. R. Sargent, maintenance engineer of the Fine Arts Furniture Co., Grand Rapids, says that his firm relies on Curtis Compressors "because of low maintenance costs and high efficiency."

In addition, says Mr. Larson of Fine Arts, "the use of air spray finishing has **upped production ratio several hundred percent** and improved quality of finish."

One Curtis Compressor has been in use for 9 years and two for 5 years, on practically continuous service, with a total maintenance expense of less than $100.

Such an experience is typical of that of thousands of users of Curtis equipment. Why? Because of such Curtis engineering advantages as:

- **Timken Roller Bearings**
- **Centro-Ring Oiling**
- **Carbon-free Disc Valves**
- **Precision Construction**
- **Capacities up to 360 cfm**

*Send the coupon or write for proof of Curtis economy and efficiency.*

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Please send me booklet, "How Air Is Being Used in Your Industry."

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# March of Time in the Columbia Empire....

HERE are just a few examples of how man-hours are being cut at the shipyards in the Columbia River area as the labor force has become skilled:

(a) When outfitting began on Victory ships at Oregon Shipbuilding Corporation, electrical work was discovered to be one of the big bottlenecks. There was a shortage of electrical workers. The problem was carried to the Metal Trades council and in an outstanding piece of cooperation between unions and management, the council agreed to allow workers to switch from other crafts temporarily to electrical jobs.

About 350 responded, thus jumping the department to 2,350 workers instead of 1,600 required to wire the Liberties. Yet, so efficiently was the work planned and executed that electric department man-hours dropped from 69,000 on the first Victory to 29,606 on the ninth. So well have the electricians mastered their complicated jobs that the last five vessels have returned from their trial runs with no electrical errors or ommissions reported.

(b) One of the toughest welding jobs on aircraft carriers is that on the stern tubes. Ventilation is poor, heat is excessive and quarters are cramped. Despite this, this operation which originally took 600 man-hours at Vancouver has now been cut to 118.

(c) There is a shortage of sheet metal workers in this area. Oregon Ship's sheet metal department solved the problem by cutting man-hours from 19,000 required on the first Victory to 9,000 on the sixth. The shop is now well ahead of delivery schedules.

(d) The largest department at Swan Island is the assembly department with 3,400 employes working on 420 separate sections for tankers. For the week ending April 2 the department released 5,084 tons, a new record. A recent simple shift of jobs and procedure cut by two man-hours the work needed to put out a ton of steel. The man-hours per ton figure is now down to about half what it was on the first few hulls.

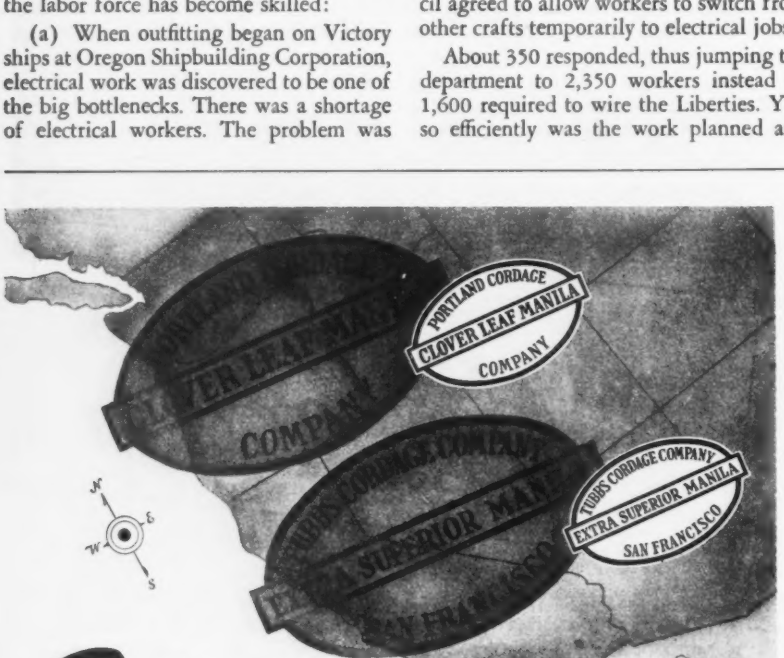
But despite new contracts, many shipyard workers are returning to home states that have no war industries and are filing in Oregon and Washington for unemployment benefit claims, which are showing a steady rise. It is estimated that the three Kaiser yards have suffered a net loss of approximately 10,000 workers since the first of the year. Best indication that the peak is past in war-time employment are the following payroll figures (in millions of dollars) from the Oregon Industrial Accident Commission for Multnomah County, in which Portland is situated:

| | 1943 | 1944 |
|---|---|---|
| January . . . . | $21.8 | $38.5 (all-time high) |
| February . . . . | 30.4 | 34.1 |
| March . . . . . | 32.5 | 28.1 |

Aluminum, one of the great post-war white hopes of the Northwest, is feeling a bit unsettled, with the Troutdale plant likely to close down a few pot-lines, and on the other hand a lack of manpower. Dr. Paul J. Raver, Bonneville administrator, faced with the possible loss of one of his biggest customers, took the bull by the horns and asked his own employees to shove Bonneville work aside and help out in the aluminum plants, and 35 of them showed up for work.

Such measures, however, are not expected to solve the problem on any permanent basis.

In face of the real facts it is doubtful that even interregional recruiting would solve the aluminum industry's problem. Maximum needs for the three plants are


*Reflections*

## OF POST WAR "BUY WORDS"

Coming events cast their shadows before—when "V" day comes, the West will once again be able to depend on the famous Tubbs and Portland trademarks that for generations have stood for rope dependability.

While the trademarks above are at present unavailable, you will still find a Tubbs and Portland rope to serve your needs. When you must replace rope, it will pay you now, as in peace time, to specify "Tubbs" or "Portland" to your supplier.

**Send for booklets, "The Rope You Save Fights for You" and "14 Ways to Make Rope Last Longer" and for illustrated Rope Conservation Chart.**

**TUBBS CORDAGE COMPANY**
SAN FRANCISCO
**PORTLAND CORDAGE COMPANY**
PORTLAND SEATTLE

only 300 men and it seems these would be easy to find. Here, however, are the real obstacles:

1. *Low wages.* Aluminum plant wage scales, though higher than was normally paid in the East, are still well below that of shipyards.

2. *Uncomfortable work.* Work on the potlines is no picnic, especially in hot summer weather. The management says it cannot take women workers, ordinary white-collar workers or 4-F's. This doesn't leave much.

3. Difficult living conditions. In considerable contrast to the shipyards which have one of the most lavish housing and recreation programs set up anywhere in the nation, complete with modern child care centers and hospitals.

Bonneville Power Administration suffered a defeat in Portland during the month when the city council gave the preference to Portland General Electric Power company in building the 115,000 volt power line into Northwest Portland Industrial area. Apparently there were no differences in efficiency or service to be considered. WPB didn't care who did it just so it was done. Reasons for the council's action:

1. P.G.E. now has a franchise and Bonneville has not.

2. Local control could be exercised over P.G.E. but not over Bonneville.

3. Bonneville's entry into the field would be a matter of such moment as to require a vote of the people and not the council.

## Lighting Fixture Restrictions Changed

All manufacturing restrictions on incandescent industrial lighting fixtures have been removed, reports Leonard A. Hobbs, assistant general manager of Smoot-Holman Co., Inglewood, California, coast representative on the WPB incandescent lighting fixture advisory committee. Some restrictions applying to utility and residential lighting fixtures have been removed.

Sales and delivery of industrial and utility have ben tightened, however, and may now be made only on orders bearing preference ratings of AA-5 or better, except that on blanket MRO orders ratings of AA2 or better are required.

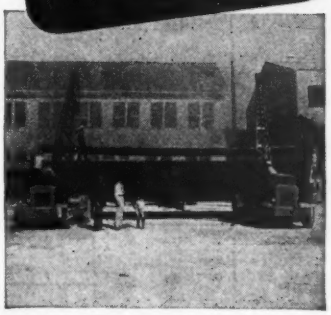
While in the East, Mr. Hobbs also attended a meeting of the Temporary Advisory Committee of Fleur-O-Lier. A six-man committee was formed to take over the guidance of Fleur-O-Lier and make it truly industry-wide in its operation.

## Smokeless Coal Project for Utah

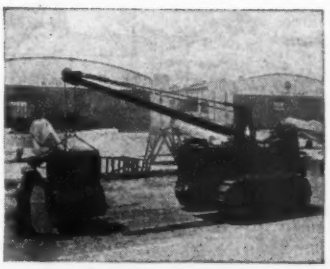
Smokeless coal production on a limited scale in Utah will be undertaken in a $35,000 semi-commercial coal processing plant.

The contract was made by the State Department of Publicity and Industrial Development with the Coal Logs, Inc. The $35,000 includes $1,000 to be spent for an experimental plant at the University of Utah and $400 for drawing plans and specifications.

Free-Roving Tractor-Footed
ROUSTABOUT CRANE



• Twin Roustabout Cranes unload extra-long strip steel.



• Roustabout Crane hustles gasoline drums at an airport.

Speedy Load-Handling
*where you want it when you want it*

• Its speedy on-the-spot load-hustling makes the Roustabout Crane invaluable to the hundreds of airports, factories, railroads, docks and warehouses that now have one or more. On wheels or crawler tracks, it goes anywhere, loads, unloads, stacks anything to five tons, prevents costly delays. Easy to operate, all tractor power, ball-bearing boom turntable, gears in oil, full boom swing—built for years of overwork. It fills the gap in your post-war materials handling plans. Write today for the cost-saving facts.

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Roustabout Cranes
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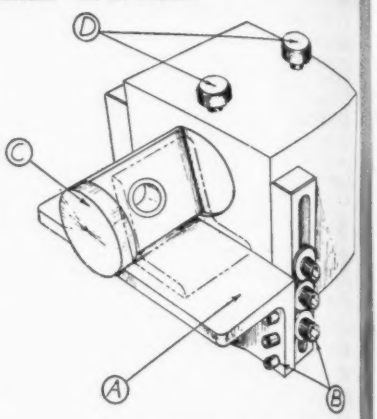
## EFFICIENCY KINKS FROM WESTERN PLANTS

**Production short-cuts • Worker's suggestions • Prize-winning awards**

Use of a plain wooden block, cut in the shape of a V, has speeded up tube cutting as much as 25 times. The block is bound on the sides by a piece of canvas and topped off with a snap fastener.—By Dale Blast. . . . Using an air stripper instead of a spring stripper for assembling the trunnion hinges on the B-24 cowling, eliminated rework and tool breakage due to insufficient spring strength.—By R. C. Gardner. . . . All rivet gun bases standardized to eliminate lost time. Previously, bases were cut different sizes and hole locations were not the same.—By Jay Lasser. (These three prize-winning suggestions from Consolidated-Vultee Aircraft, San Diego.)

A feminine touch was turned to efficient production use by Betty Cullison of the Vultee Field Division of Consolidated. She suggested dabbing a puff into a box of soapstone powder and patting the powder through holes in the pattern. The powder leaves marks on the rubber lining, thus giving exact location of the holes for punching. . . . A normalizing procedure on motor mount gussets, doing away with cracks which developed after welding gussets made of the new low-alloy wartime steel, replacing former chrome-moly metal.—R. L. Flutot.




**Jig replaces boring mill**

A jig for drilling holes in precision tools which enables unskilled operators to drill and ream holes in angles within a tolerance of plus or minus .001, has been developed at Consolidated Vultee Aircraft Corporation's Downey, Calif., plant.

Prior to this development it had been necessary for a skilled mechanic to make a set-up on a boring mill for every hole to be drilled, a time-consuming operation. With the new tool only one set-up for a given dimension is essential. Once this is established, holes can be drilled and reamed at any angle.

The tool has an adjustable base which can be lowered or elevated to the desired height of the hole. The drill bar is ground to exactly one-half of the overall diameter. The desired face of the angle, once established with a protractor, is made fast with a pair of set screws. This maintains a constant elevation of the hole in the part at any given angle, keeping the hole normal to its face.

Use of this tool has saved an estimated 850 man hours annually.

By keeping the two sections of the instrument panel on P51 Mustang fighters integral throughout the forming, routing and drilling operations, these operations now only require one die or jig. The part is finally cut in half to produce the top and bottom halves of the panel. Material is saved in forming and trimming by eliminating two working surfaces and eight parts are now made out of one sheet instead of six as formerly. The two final sections are more accurately matched since they are fabricated as a unit up to the point of final separation. Due to the method of installation, the panel has to be divided into two parts.—Herman F. Lang, North American Aviation, Inglewood.

Gas-weld tacking converted to spot-weld tacking, eliminating 50 per cent of

## Ingenious New Technical Methods

**Presented in the hope that they will prove interesting and useful to you.**

### New Air Tool Drives "blind" Rivets Accurately... Automatically

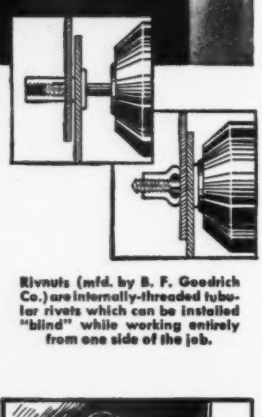
**Installing** "blind" RIVNUTS quickly with precise, positive upset while working entirely from one side is now possible with the recently developed Auto RIV-Driver. Completely automatic, the tool runs a threaded mandrel into a Rivnut, upsets it, backs the mandrel out and stops the tool. Operators simply press a throttle; make no manual adjustments for any operation. Rivnuts are installed 6 to 8 times faster than formerly; rejects are almost completely eliminated.

**The** tool can be adjusted to upset at any depth required. Once set, adjustment is tamper-proof—every Rivnut is driven accurately and uniformly. An indicator on the tool handle lights when the upset is correct; does not light if Rivnut is improperly headed.

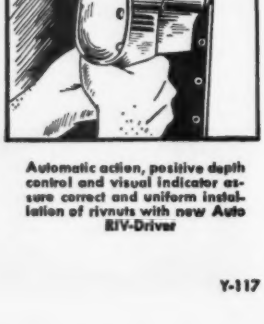
**Powered** by compressed air, the Auto RIV-Driver weighs just 4¼ pounds; is 9½ inches long; balanced for efficient handling by women operators.

**You** all know that our fighting men need the finest quality materials that we here at home can produce. That goes for Wrigley's Spearmint, Doublemint and "Juicy Fruit" chewing gum, too. Our stock pile of raw materials that goes into the making of Quality chewing gum is getting lower and lower. Until we can again build up our raw material inventory, we are sending all of our limited output of Quality chewing gum to our fighting men and women overseas, only.

*You can get complete information from the Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.*



**Rivnuts (mfd. by B. F. Goodrich Co.) are internally-threaded tubular rivets which can be installed "blind" while working entirely from one side of the job.**




**Automatic action, positive depth control and visual indicator assure correct and uniform installation of rivnuts with new Auto RIV-Driver**

Y-117

straightening and checking time and giving a better job on boss clamp assembly.—R. J. McDaniel and G. W. Duplain. . . . Use of arrow stickers to indicate damage or error, helps inspectors to quickly locate details which need rework.—K. A. Benson. . . . Using revolving table and air squeezer instead of holding fixture in revising work procedure has made it possible for one to do the work of two.—John Miller. (Awards at Douglas Aircraft.)

To improve the efficiency of a flame burner, an adjustable head has been devised for all bevelling work. Previously, each mechanical adjustment of the head "gouged" the edge of the plate requiring a weld job.—G. D. Shay, Swan Island Shipyard.

Line-shaft drill fixture eliminates the hand method of laying out and drilling the bell circle on a line shaft.—Gabriel H. Balik, Oregon Shipbuilding.

Welding table with cross members stripped with a copper rod on which brazing can be performed. This device prevents the tables from being damaged so that they must be rebuilt.—L. M. Norris.

Small crane to remove or replace the heavy 4-jaw chuck. The crane, which is easily handled by one man, eliminates much of the possibility of injury in lifting chuck blocks.—C. T. Ruppert.

(Both of Moore Dry Dock Co., Oakland.)

### Training Programs Develop Mechanics

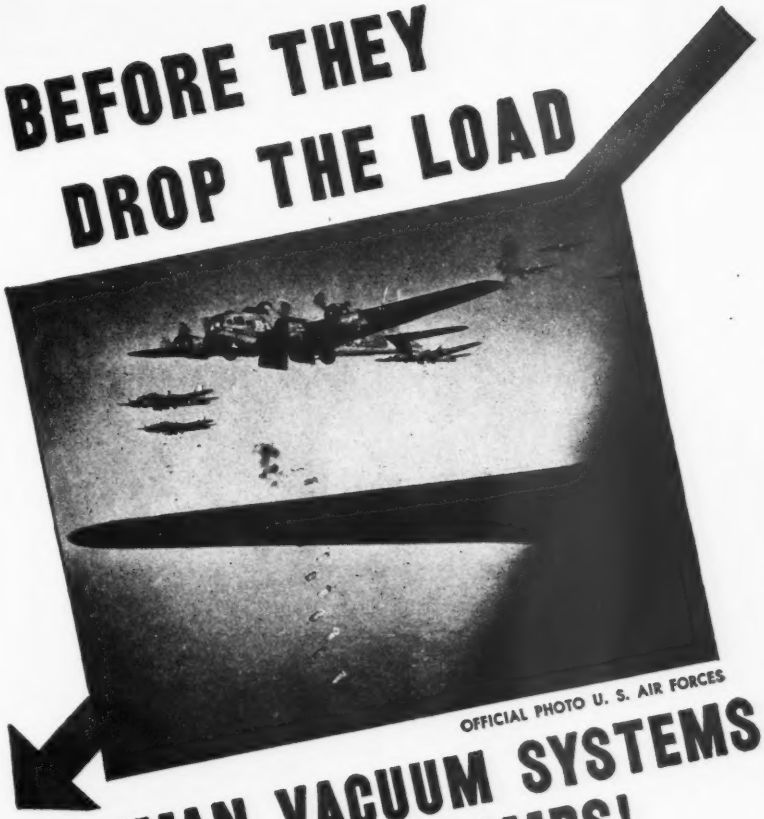
Public vocational schools since July, 1943, have trained more than 2,500 maintenance workers, supervisors and foremen for the automotive industry in Pacific Coast communities, and public vocational training has "alleviated the automotive manpower shortage" in one community, the Office of Defense Transportation announces through Roy O. Long, director.

Approximately 30 classes have been held in San Francisco, Eureka, California; Klamath Falls, Marshfield, Roseburg and Portland, Oregon; Spokane, Washington, and in Reno and Sparks, Nevada, with supplementary or upgrading classes in Oakland and Fresno, Calif.; Reno, Nev.; and Medford and Portland, Ore.

### Night Shifts Get Pay Raise

Puget Sound Navy Yard workers on the second and third shifts have received an increase in pay at the Bremerton Navy establishment. Workers on the swing and graveyard shifts formerly got the same rates of pay as day-shift employees. In the future, the Navy announced, each swing-shift employee will get a premium of 10 per cent of the intermediate schedule of pay for his particular type of work. Persons on the graveyard shift will get 15 per cent premiums.


BEFORE THEY DROP THE LOAD



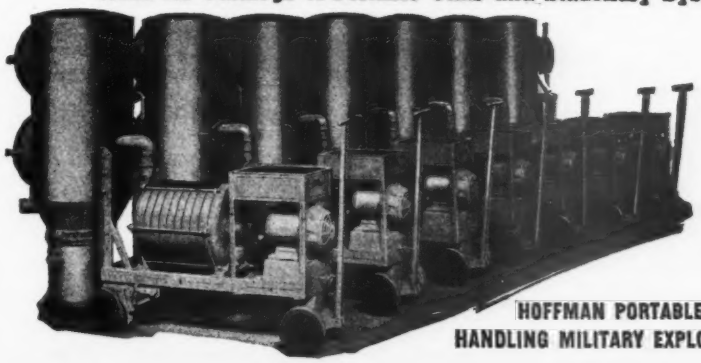
OFFICIAL PHOTO U. S. AIR FORCES

HOFFMAN VACUUM SYSTEMS HELP LOAD THE BOMBS!

The Number One War Job for Hoffman Vacuum Systems is in Army and Navy ammunition loading plants. Special Hoffman Stationary Dust Removal Systems are daily rendering vital service on production operations in handling dust from military explosives, eliminating dust hazards and speeding output.

Separate stationary and portable systems are also being used on vacuum cleaning operations.

There may be important operations in your plant where dust, metal dust or metal chips are interfering with the production of war materials. Write for Catalogs of Portable Units and Stationary Systems.



HOFFMAN PORTABLES FOR HANDLING MILITARY EXPLOSIVES

U. S. HOFFMAN MACHINERY CORPORATION

AIR APPLIANCE DIVISION, 92 EAST 12TH ST., NEW YORK 3, N. Y.

# Industry in Review . . . Tehachepi to Tijuana

WAR PRODUCTION continues its high rate of activity in the Southern California area. Changes and shifts in the war production program cause idleness in some plants, requests for speed and more speed in others. It would be easy to be "up" or "down" depending on latest rumor . . . or fact.

General picture seems to be that the concentration of production of "most essential weapons and materials of war" in this area will result in this area being kept busy at its job just about as long as any area in the United States. Another factor is that plants in this area have established a reputation for efficiency in making some items that possibly could be made elsewhere. Desire to maintain the tempo of today's war will result in these contracts remaining in this area, despite "manpower" pressure. . . .

Manpower still continues to be the hydra-headed monster it always was. Nail down one or two tentacles after a big battle, and another reaches over and knocks you down. Although this is all one area, various sub-divisions may have a manpower problem that is severe, whereas others may not feel it. Creates general impression problem solved if you happen to be in such areas.

Harbor area is a sore spot. Lack of housing near by . . . and lack of good transportation to and from other areas where workers can live is major problem. Workers are seeking jobs in plants nearer homes. Housing program had to slow down to release lumber for other vital purposes such as packaging weapons of war. New construction programs also a factor.

Type of workers causes difficulty. Big demand is for "unskilled" labor. These jobs go begging, while workers "shop around." . . .

Desire for jobs with post-war opportunities enters picture. A firm advertised for 10 workers for jobs "with post-war future" and had 400 applicants. Many, it is estimated, were "absentees" from their own plants on that day.

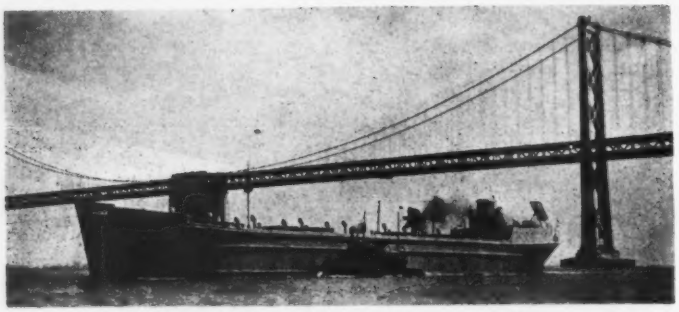
Many workers can afford to "sit out" the 60-day period required to enter non-essential industries. In fact, many are doing that very thing. Some workers are leaving this area. Wish to get settled back in some job they left.

Against that, new workers coming in steadily. And there are returning war veterans who are helping to solve manpower problem. It is necessary to watch the type of work they do very carefully, so they do not delay their recovery, but speed it. . . .

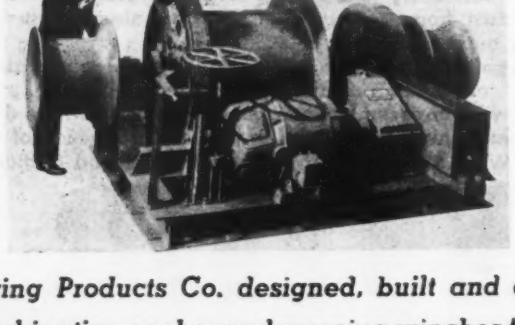
While war production races against time, horses may race against each other. The race track project will require 2,000 workers. May make other industries feel they should have more workers, or return to civilian production. Worst of all, may add to absentee problem. (Not our views, but views of those opposed.) . . .

Odd facts: (1) Many war workers consider living costs in Southern California (and West) very "high." Have lived here only during war and don't know that West is, generally speaking, an economical place to live. If we want these workers to stay, we may wish to do a little "selling" on this. (2) Used car dealers bombard you through the air, in your newspapers to sell you their cars. Payoff comes when you drive down automobile row. Most enterprising of these institutions have "barkers" stationed every 20 feet flagging you down for a chance to give you an appraisal, so you will sell them your car!


THEY WERE NEEDED *Now!*



**Concrete ships were needed now. Winches too, had to be available quickly.**



***Engineering Products Co. designed, built and delivered these combination anchor and warping winches for Barrett and Hilp concrete ships on a schedule that made launchings on time possible.***

On Engineering Problems call Engineering Products

ENGINEERING PRODUCTS CO.

1600 SO. SAN PEDRO ST. • PRospect 7044 • LOS ANGELES 15, CALIF.

## WESTERN MARKETERS AND MARKETING

**A monthly column devoted to the promotional and advertising plans of western manufacturers**

Advertising of *MacMillan Petroleum Corp.*, Los Angeles, is now being handled by the *Will Grant Agency* of the same city.

*Union Pacific* appoints Robert B. Denton director of public relations for the eleven western states. He has been associated in the Los Angeles office of UP for the past seventeen years.

New account executive with *Mays & Bennett*, Los Angeles, is Gerald J. Donahue, formerly advertising manager for Gilmore Oil Co.

Effective May 1st, Richard G. Montgomery joins the long-established *W. S. Kirkpatrick Agency*, Portland, Ore., as a partner. For the past two years Montgomery has been district director of the Portland office of OPA.

Resigning after three years as space buyer in the San Francisco office of *BBD&O*, Fred Meyer leaves shortly to become national advertising manager for the Honolulu Star-Bulletin. Meyer leaves a host of friends on the mainland whom he expects to see on his regular annual trips. His desk at BBD&O will be filled by Paul Russell, a member of the agency for the past two years and formerly manager of the Stockton office for Foster & Kleiser.

Raymond Reeves, who has been regional business consultant for the Department of Commerce since June 1941, having his office in San Francisco and serving seven western states, has rejoined the *J. Walter Thompson* advertising agency, and will be located in the New York office, doing special planning and research work. Before going with the government, he was with the J. Walter Thompson Company coast offices as research director.

*W. F. Busse* has joined *West-Marquis, Inc.*, as manager of their San Francisco office, having completed a term of service with the Army Transport Service. Previous to being in the army he was connected with advertising agencies in Seattle and Los Angeles.

*The Connor Co.*, San Francisco advertising agency, has taken on the account of the *American Rubber Mfg. Co.* of Emeryville, manufacturers of belting and other rubber specialties. They have also added to their staff as account executive Dennis Muir, lately of Australia and New Zealand.

**Does your Absenteeism Rise with the Thermometer?**

**You can hold it down at a cost of less than 1 cent a man per week**

A rising temperature and a rising number of absentees usually go together. One reason is sweat.

Sweat robs the body of essential salt. This loss of salt dehydrates the body. It thickens the blood. Throws body fluids out of equilibrium. The result is Heat-Fag. Workers are tired, easily fatigued. They lack the "drive" that keeps production soaring.

Water alone can't replace the fluids lost through sweat. Water alone in hot, sweaty conditions dilutes body fluids and causes heat cramps.

The real answer is water *and salt tablets* at every drinking fountain. Then workers who do hard work and sweat can take a Morton's Salt Tablet every time they take a drink of water. This is the easy, simple, sanitary way to maintain the proper salt balance. It is recommended by industrial physicians and endorsed by America's greatest corporations. The cost is less than 1 cent a man per week.

**This Is What Happens When Sweating Robs the Body of Salt . . .**

**QUICK DISSOLVING**
*(Less than 30 Seconds)*

This is how a Morton's Salt Tablet looks when magnified. See how soft and porous it is inside. When swallowed with a drink of water, it dissolves in less than 30 seconds.

Case of 9000, 10-grain salt tablets - - - - - - $2.60

Salt-Dextrose tablets, case of 9000 - - - - - $3.15

MORTON'S Heat-Fag SALT TABLETS

**MORTON'S DISPENSERS**

They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.

800 Tablet size - - - $3.25

*Order from your distributor or directly from this advertisement . . . Write for free folder.*

**MORTON SALT COMPANY, Chicago 4, Ill.**

# LABOR
## AND THE INDUSTRIAL WEST

### Elements Involved In Shipyard Strike

The difference between new work and repair work on ships in drydock and the 14c an hour differential allowed for the latter are explained by the Tenth Regional War Labor Board, in connection with the recent machinists' strike in San Francisco Bay shipyards as follows:

Repair work for which the rate is $1.34 an hour covers all work on vessels after completion and final acceptance, and after the vessel has made a passenger or cargo-laden voyage or any voyage in the service for which it was constructed. New construction paid at $1.20 is construed to be any newly constructed floating structure prior to its completion, final acceptance and employment in the service for which it has been constructed.

Work on new vessels is primarily adjustment, tightening and replacement of occasional defective parts. Repair on operating vessels is making and fitting replacements for worn parts.

Workmen were formerly allowed one hour "clean-up" time because it was recognized that operating vessels in a dock for repair are dirty whereas new vessels are relatively clean. The men agreed to work this "dirty hour" instead of using it for clean-up and were compensated with an 11.6 per cent differential for cleaning up on their own time.

### "Guide Rates" Established For Lumber Industry

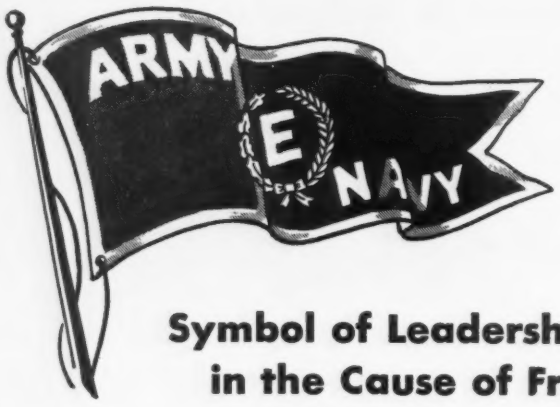
"Guide rates" to facilitate the determination of rate relationship in the lumber industry have been established following conferences between the National War Labor Board and the WLB West Coast Lumber Commission. "Guide rates" for the handling of wage cases arising from alleged intraplant inequities are to be determined on the basis of the uniformity of any particular job throughout the industry, or in a particular area.

The Board deferred taking action on the question of the jurisdiction of the Commission over Redwood and Central California Pine industries, and directed that hearings scheduled to be held in San Francisco before a panel set up by the WLB proceed as planned.

### Collective Bargaining Contracts

The Tenth RWLB announces that expiring collective bargaining contracts between employers and unions should be extended by the parties by voluntary negotiation so as to maintain the status quo pending completion of a new agreement or final settlement of any issues in dispute. This decision was reached in a dispute between A. Hoegee & Sons, Inc., and Local 3163 of the Venetian Blind and Awning Workers Union, AFL.

A parallel case was cited at the Board meeting and the following was a portion of the unanimous opinion of the NWLB: "It has become increasingly evident that lack of a contractural relationship between employers and employees defining wages, hours, and working conditions, in the interim pending completion of a new contract, creates a feeling of uncertainty which adversely affects production and harmonious relations within the plant. Experience has demonstrated furthermore that this uncertainty reflects itself in the atmo-


**Symbol of Leadership in the Cause of Freedom**

COMPAS

Our Army-Navy "E" Award for excellence in war production is a high achievement. Proudly we unite with our fighting forces in serving America and all free men in their hour of greatest need.

To finish the job—we are working full time on a "win the war" schedule . . . with over 400 spindles continuously running on our automatics. On a recent vital aircraft parts job we broke a bottleneck and stepped up production from 2,000 to 20,000 parts per day—with less than one-half of 1% scrap.

When the Victory is won, our speed, precision and efficiency will be maintained for the industrial development and progress of a world at peace.

**PACIFIC**
**SCREW PRODUCTS CORP.**
*15 Years of Progress and Service*
**5211 Southern Ave., South Gate, Cal.**
Kimball 5211

***Largest and Best Equipped Screw Machine Plant in the West***

sphere of collective bargaining and lessens the chances for a peaceful and speedy disposition of the issue in dispute."

### Los Angeles Foundry Cases

Whether or not Los Angeles Foundry cases are "rare and unusual" is the unanimous request by the Tenth Regional War Labor Board of the National Board. They also ask the Board to determine whether wage increases be granted beyond the minimum of the foundry brackets set by the Tenth Region Board "to aid in the effective prosecution of the war." The labor relations situation is acutely characterized by a series of stoppages of work although the unions involved have in each case succeeded in getting the men to return to work. Wage increases beyond the minimum of the established brackets have heretofore been allowed by the Tenth Board—that is, where the Board found the following conditions to exist:

1. Products of highest essentiality to the war effort, as certified by the federal procurement agency, usually Army, Navy, War Production Board.
2. Products cannot be produced satisfactorily elsewhere, as certified by the federal procurement agencies.
3. Production schedules are not being met, primarily due to labor shortage and not other causes, as certified by the federal procurement agency involved.
4. That a labor shortage exists and that every available method (except a wage increase) has been tried and has failed to provide a suitable labor supply, as certified by the War Manpower Commission. WMC is asked to indicate from what source labor would be attracted by higher wages, and the possible effect on other production.

### Vacation Pay May Follow Area Practice

It is within the discretion of Regional War Labor Boards to order a vacation schedule based on area practice in one plant of a company even though the company has a different vacation plan in other plants in other parts of the country, the National War Labor Board ruled on a majority decision denying petitions of two companies for review orders of Regional Boards which had directed a vacation plan of one week with pay after one year of service and two weeks after five years.

Affected were the General Refractories Company plant in Vernon, California, and the Continental Can Company stockyard in Chicago. The General Refractories plant had been granting one week's vacation after three years of service and two weeks after ten years.

### No Action on Two Shifts

The Pacific Coast Shipbuilding Conference left the two-shift proposition untouched in its conference at Portland last month. Management and labor in the various yards can do as they see fit. No action was taken on ship-repair wages.

THEY DEPEND ON YOU!

Every American has a part in this war, and yours is an especially important one. For without the individual, patriotic efforts of the men and women in American industry, the men and women of America's fighting forces could never have been housed, equipped, armed or transported to the battle fronts. You are a Citizen Soldier with a definite duty for the duration.

LET'S GET ASSOCIATED

The machines by which you work your production miracles are no less vital. In their maintenance and protection, we want to assist you. New and better lubricants and up-to-the-minute advisory service based on continuous study and solving of wartime problems, are our contributions. Your Associated representative is a Citizen Soldier, too, able and eager to serve you at any time.

GASOLINE POWERS THE ATTACK
—DON'T WASTE A DROP!

TIDE WATER ASSOCIATED OIL COMPANY

CADEL A. P. HEAVY DUTY LUBRICANT • VEEDOL AND TYDOL MOTOR OILS
CYCOL INDUSTRIAL LUBRICANTS • ASSOCIATED AVIATION ETHYL AND
FLYING A GASOLINES • FISK TIRES • AERO BATTERIES

# Editor's FIELD BOOK NOTES

THE recent press tour of the Southern California Synthetic Rubber Project which preceded the release of the news about this big development to newspapers and magazines was one of the finest examples to be found anywhere of skilful handling of publicity. At the outset the visiting editors and reporters were given a preliminary verbal outline (amid an excellent breakfast setting of ham and eggs at the Biltmore, to be sure). Then they were presented with a general mimeographed "handout" covering the entire project, separate handouts for each individual unit and plenty of pictures, with more that could be taken by the accompanying cameraman if anyone desired.

As each unit was visited, the party was broken up into small groups with a guide for each, and all the questions anyone wanted to ask were welcome. At some of the units there was a preliminary swing of the chartered buses through the site to the accompaniment of a lecture given by a man standing in the bus. Consequently, if anyone didn't get a good story, it was his own fault. Apparently much of the credit for this carefully planned tour, which left everyone free to draw his own conclusions and write his own story, favorable or unfavorable, as he desired, belongs to Gordon Hendry of U. S. Rubber.

At that there were a few slips. In one unit the lecturer announced that the product (a liquid) was purer than Ivory Soap, but when little sample tubes were passed out, the liquid had strips of something-or-other floating in it. Seems that the tubes had been used for something else and hadn't been washed out before being filled with ——— (deleted by censor).

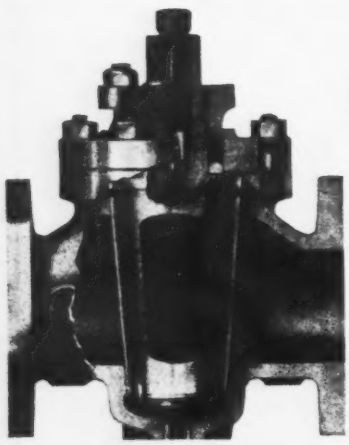
And then there was one bewildered editor (name also deleted by censor) in whose head butylenes, butadienes, styrenes, latexes, etc., buzzed in a confusing whirl and who dejectedly confessed, "This is the first story I ever have been on that was so entirely technical that I couldn't even figure out one question to ask." And an indignant press association representative complaining that the ——— (name of opposition press association deleted by censor) "didn't observe the release date." We didn't get all of this conversation, so maybe it was some other story than synthetic rubber on which the faith had been broken. But it's an exceedingly angelic press association that never has been accused of jumping the gun on some important event . . . not to mention the historic example of the press association that ended the first world war three days too soon.

Some of the government agency men who have to listen to manpower shortage and cancellation complaints, day in and day out, get rather case-hardened. It just doesn't add, they say, when a man who shouts his desire to help win the war won't take a low-profit contract because there might be a gravy train along pretty soon.

Speaking of patriotism, we met a man just out from Chicago, whose loyalty to his home town struck a new high in devotion. "Finest place in the world . . . the Woolworth store there is always open on Sunday." What more could a man want of his home town than that, we ask you?

Another proof that the army has gone Hollywood: at the Santa Ana Air Base (and all the rest of them, too, we suppose) there is a new occupation during training. It is called "Mess Management." Think of the millions in our country's history who have endured K.P. without knowing that some day it would be elevated to such undreamed-of dignity and sanctity! After this we can expect anything. When we see a husky soldier with an arm band bearing the letters "M G L" we will know that it stands for "Moral Guidance Leader" and that the MP's are no more!

Speaking of the army, one of the members of our staff has a husband out in the South Pacific whose past includes a tangle with an income tax collector who insisted

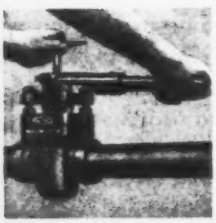
Class 125 Type

LUBRICATED PLUG VALVES

*by*

WALWORTH

THE ALL PURPOSE VALVE OPERATING AT LOW MAINTENANCE AND REPLACEMENT COST



All Adjustments Easily Made

Recommended for the handling of gritty solutions, chemicals, and acids, and for a wide range of pressures and temperatures.

When properly installed and regularly and correctly lubricated, Walworth Lubricated Plug Valves require little further attention. They are manufactured to close tolerances, of best materials obtainable, and produced on modern precision equipment.

*Available in low cost design*

WALWORTH CALIFORNIA CO.

*Distributors of WALWORTH Quality Products and Allied Industrial Lines*

"BRING YOUR PIPING PROBLEMS TO WALWORTH"

665 SIXTH STREET · GArfield 3950 · SAN FRANCISCO 1, CALIF.

that too much money had been entered under the expense account heading and periodically called around to demand that further payment be made. Down in the South Pacific they met again, and although the income tax man was wearing an army uniform, the above-mentioned husband isn't sure but that he was really sent down there by the treasury department to collect that underpayment.

### Record Iron Ore Output

Iron ore production in California last year broke all known records, Walter W. Bradley, State Mineralogist, reports. Ore shipments totaled 907,458 net tons, valued at $2,341,827 f.o.b. mine, greater than the previous total output since 1881. The ore came from four properties in San Bernardino County and from one each in Santa Cruz and Shasta counties.

### Escort Profits

Naval escort vessels being built at the Seattle-Tacoma Shipbuilding Corporation cost $7,290,000, and the fixed profit fee is $364,500 plus possible bonuses for completion of schedule or under estimated cost, according to testimony brought in a wage claim case.

### High Octane Expansion

Further expansion of the southern California high octane gasoline program has been approved by the Los Angeles Area Production Urgency Committee through urgency ratings for manpower on five additional projects totaling $457,700. They are:

New tank facilities at the General Petroleum Corporation's Torrance refinery, $135,000; pressure tanks at the Texas Company's refinery at Fillmore, $20,200; gasoline hydrogenation plant at the Shell Oil Company's Wilmington refinery, $68,000; experimental laboratory, $200,000; other facilities, $34,500.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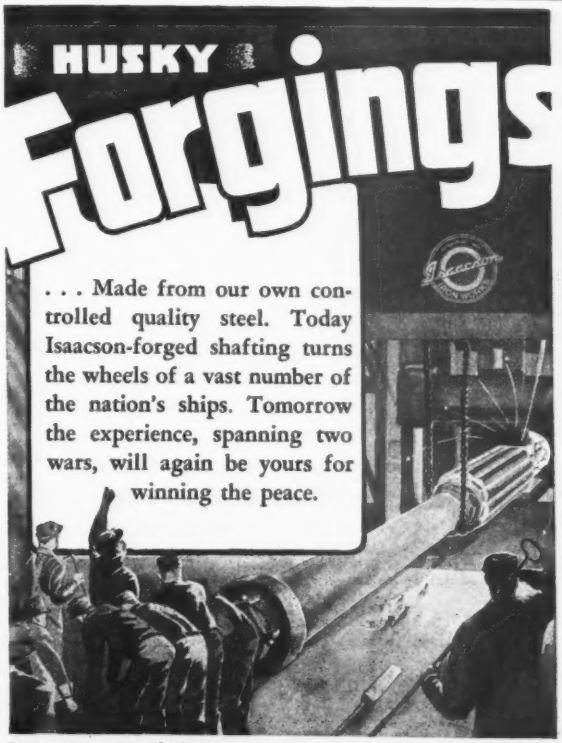

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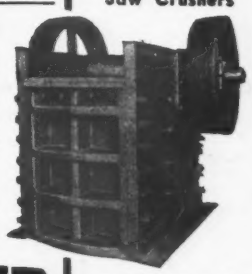

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### THE PICTURE

A 51 per cent drop in war contracts for the West for March from February, amounting to $215,454,000, a 40 per cent cut in magnesium output from BMI at Las Vegas, Nev., and a shutdown of one aluminum potline at Troutdale, Washington, will be reflected eventually in the accompanying statistics (war production appears this time). On the other hand, through March electric energy production in the West was rising, contrasted with a sharp drop-off for the nation as a whole, and April carloadings continued an upward trend.

## Aircraft—*Down, Changing Over*

In line with operating schedules calling for a gradual reduction of obsolete types, West Coast aircraft plants delivered 408 less warplanes in April than in March when an all-time peak was reached with a delivery of 2,703. This decrease was anticipated in March due to the shift to heavier models and a temporary leveling off of production in line with changing combat requirements. Nevertheless, April production was 290 planes in excess of the 2,005 built in the same month last year.

| | *No. of Planes* | *Total Poundage* |
|---|---|---|
| December, 1943 | 2,527 | 30,880,000 |
| January, 1944 | 2,559 | 31,892,000 |
| February | 2,569 | 32,469,000 |
| March | 2,703 | 36,015,200 |
| April | 2,295 | 30,993,000 |

## Lumber—*Drive Goes On*

April production of West Coast lumber industry rose above the March recession, the West Coast Lumbermen's Association reports, showing the force of the industry's drive through this critical year of the war. The manpower problem, including the induction of skilled men for military service, remains one of the hardest barriers to surmount. No drop in war demands for lumber is in sight. Current purchases of the Central Procuring Agency are running well over 50 per cent of production.

For month after month this trend has continued with remarkable uniformity: government orders in excess of production, accumulation of unfilled orders, shipments heavy, military representatives placing orders with mills 60 to 90 days ahead, mills asked to produce unheard-of percentages of boards.

Cumulative figures for 17 weeks in 1944 and previous years in thousands of board feet are as follows:

| | 1942 | 1943 | 1944 |
|---|---|---|---|
| Production | 2,838,731 | 2,331,236 | 2,762,554 |
| Orders | 3,422,912 | 2,538,287 | 3,006,257 |
| Shipments | 3,069,510 | 2,428,651 | 2,757,634 |

Western Pine Association figures covering Idaho White Pine, Ponderosa Pine, Sugar Pine and associated species for the current year to May 6 are as follows:

| | 1943 | 1944 |
|---|---|---|
| Orders | 1,235,497 | 1,212,484 |
| Shipments | 1,196,033 | 1,174,681 |
| Production | 890,451 | 966,574 |

## Ships—*Slight Pick-up*

Pacific Coast shipyards moved a little faster in April than in March on keel layings and launchings, but the total tonnage of merchant ships delivered was lower by 38,000 deadweight tons. There were 64 keel layings, six more than in March, and 67 launchings, also an advance of six. The 64 deliveries listed below do not include two wooden tugs totaling 448 tons.

| | No. of ships | Thousands of deadweight tons |
|---|---|---|
| August | 85 | 989 |
| September | 80 | 838 |
| October | 76 | 787 |
| November | 78 | 776 |
| December | 95 | 969 |
| January, 1944 | 67 | 633 |
| February | 59 | 585 |
| March | 73 | 679 |
| April | 64 | 641 |

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September on are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

## Cement—*This Year Less*

Cement production figures for the Pacific Coast, reported by the Bureau of Mines (in thousands of barrels), are as follows:

| | California | | Ore.-Wash. | |
|---|---|---|---|---|
| | 1943 | 1944 | 1943 | 1944 |
| February | 1,561 | 1,000 | 446 | 291 |
| March | 1,740 | 1,231 | 446 | 381 |
| Year to date | 5,185 | 3,311 | 1,088 | 989 |

## Iron—*Ore Statistics*

| | Shipments | | | Total stocks end of Mar., '44 |
|---|---|---|---|---|
| | Steel furnace ore | Other ore | Total | |
| Ariz., Mo., Nev., Wash. | 148 | 1,780 | 1,928 | 98 |
| California | 1,006 | 53,008 | 54,014 | 121,500 |
| Utah | 247 | 133,654 | 133,901 | 5,581 |
| Wyoming | 7,796 | 78,495 | 86,291 | — |
| | 9,197 | 266,937 | 276,134 | 127,179 |

## War Production Contracts—*March 51 Per Cent below February*

*In Thousands of Dollars—Source: War Production Board Statistical Division*

NOTE: *The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellations are usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.*

| | MONTANA | IDAHO | | WYOMING | COLORADO | | | N. MEX. | ARIZONA | | | UTAH | | NEVADA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All Other | Ships | All Other | All Other | Aircraft | Ships | All Other | All Other | Aircraft | Ships | All Other | Aircraft | All Other | Ships | All Other |
| July | 852 | ... | 1,319 | 5,689 | ... | 56 | 1,522 | 142 | 10,000 | .. | 1,399 | ... | 1,131 | ... | 1,168 |
| August | ... | ... | 926 | 693 | ... | ... | .... | 263 | .... | .. | .... | ... | 586 | ... | 1,020 |
| September | 472 | ... | 263 | 3,367 | ... | 587 | 4,363 | 83 | .... | .. | .... | 847 | 2,204 | ... | 1,287 |
| October | 2,770 | 320 | 757 | 65 | 260 | ... | 6,185 | 178 | .... | .. | 6,678 | ... | 726 | ... | 1,971 |
| November | 611 | 134 | —61 | 57 | ... | 263 | 5,488 | 860 | .... | .. | 2,705 | ... | 1,643 | ... | 89 |
| December | 1,778 | ... | 1,007 | 4,694 | ... | ... | 6,969 | 319 | 5,826 | 67 | 373 | ... | 4,232 | ... | —1 |
| January | .... | ... | 370 | 1,280 | ... | ... | 125,636 | 824 | . .. | 112 | 66 | ... | 778 | ... | 83 |
| February | 1,384 | ... | 52 | 7,858 | ... | —241 | —374 | ... | ... | 208 | 175 | ... | 195 | ... | 5,295 |
| March | 34 | ... | 50 | 602 | 98 | 119 | 3,069 | 573 | 9,396 | ... | 203 | ... | 1,076 | ... | 1,305 |
| Total from June, 1940 | 15,807 | 639 | 8,194 | 30,368 | 1,464 | 2,186 | 391,677 | 4,653 | 47,995 | 387 | 23,268 | 847 | 168,240 | 156 | 11,396 |

| | WASHINGTON | | | OREGON | | | CALIFORNIA | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aircraft | Ships | All Other | Aircraft | Ships | All Other | Aircraft | Ships | All Other | Aircraft | Ships | All Other |
| July | 616 | —11,339 | 24,859 | —688 | 40,816 | 5,285 | 850,816 | 13,076 | 57,964 | 860,744 | 42,609 | 101,300 |
| August | 5,000 | 136,822 | 9,198 | ... | 179,578 | 31,624 | 625,192 | 66,030 | 242,897 | 630,192 | 382,430 | 287,720 |
| September | 4,716 | 12,205 | 22,554 | ... | 4,147 | 7,652 | 81,700 | 38,378 | 79,449 | 86,416 | 55,317 | 121,704 |
| October | 2,869 | 9,762 | 10,469 | 28 | 23,908 | 19,246 | 27,738 | 198,299 | 55,374 | 32,895 | 232,289 | 105,819 |
| November | 517,863 | 22,474 | 15,703 | 842 | 181,468 | 4,757 | 10,632 | 164,992 | 62,377 | 529,377 | 369,331 | 94,520 |
| December | 319 | 6,006 | 74,929 | ... | 46,521 | —8,392 | 59,345 | 15,051 | 237,041 | 65,490 | 67,645 | 322,857 |
| January | .. | 1,549 | 23,782 | ... | 7,803 | 12,600 | 2,390 | 280,712 | 46,041 | 2,390 | 290,176 | 211,403 |
| February | ... | 84,257 | —74,558 | ... | 6,602 | —760 | 221,910 | 142,683 | 26,174 | 221,910 | 233,509 | —34,588 |
| March | —79 | —226,602 | —16,553 | —169 | 3,136 | —5,133 | 397,502 | —42,828 | 79,517 | 406,748 | —266,175 | 64,834 |
| Total from June, 1940 | 1,881,904 | 1,703,629 | 350,886 | 1,033 | 1,079,593 | 132,662 | 9,397,015 | 4,051,456 | 1,579,721 | 11,330,258 | 6,838,046 | 2,724,582 |

## Electric Energy—*Pacific Coast Up, National Output Down*

*Production of Electric Energy for Public Use—In Thousands of Kilowatt Hours—Source: Federal Power Commission*

| | Montana | Idaho | Wyoming | Colorado | New Mexico | Arizona | Utah | Nevada | Total Mtn. | Washington | Oregon | California | Total Pacific |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January, 1943 | 213,629 | 102,021 | 19,710 | 89,621 | 37,364 | 309,377 | 61,283 | 235,346 | 1,068,351 | 661,838 | 358,264 | 977,670 | 1,997,772 |
| February | 195,179 | 96,982 | 18,054 | 79,624 | 34,048 | 190,949 | 44,459 | 212,981 | 872,276 | 616,219 | 327,065 | 996,819 | 1,940,103 |
| March | 211,314 | 97,021 | 19,452 | 87,336 | 36,960 | 216,265 | 50,058 | 265,277 | 984,283 | 693,966 | 358,817 | 1,107,202 | 2,159,985 |
| April | 181,181 | 118,927 | 20,292 | 83,131 | 38,728 | 222,445 | 49,104 | 247,139 | 959,947 | 682,966 | 348,953 | 1,132,227 | 2,164,146 |
| May | 205,605 | 122,700 | 26,558 | 81,677 | 38,266 | 265,685 | 47,694 | 269,825 | 1,058,010 | 698,471 | 389,494 | 1,239,465 | 2,327,430 |
| June | 201,687 | 115,247 | 29,316 | 78,842 | 38,428 | 280,268 | 45,862 | 278,148 | 1,067,798 | 697,763 | 370,026 | 1,272,391 | 2,340,180 |
| July | 217,075 | 123,272 | 34,675 | 85,943 | 40,758 | 322,526 | 48,909 | 274,703 | 1,147,861 | 704,949 | 392,453 | 1,365,434 | 2,462,836 |
| August | 235,592 | 122,753 | 35,135 | 87,953 | 43,856 | 264,410 | 55,787 | 280,111 | 1,124,696 | 701,848 | 419,192 | 1,419,201 | 2,540,241 |
| September | 225,227 | 117,165 | 33,928 | 89,863 | 41,255 | 276,091 | 46,832 | 260,991 | 1,081,352 | 780,776 | 408,871 | 1,362,769 | 2,552,416 |
| October | 244,685 | 110,958 | 20,972 | 93,991 | 40,270 | 300,702 | 50,763 | 284,437 | 1,145,877 | 831,305 | 430,335 | 1,317,501 | 2,579,141 |
| November | 234,174 | 105,282 | 20,338 | 94,670 | 38,336 | 279,389 | 52,025 | 299,159 | 1,123,373 | 860,165 | 419,929 | 1,277,015 | 2,557,109 |
| December | 230,276 | 106,406 | 20,951 | 97,429 | 41,999 | 294,909 | 60,995 | 326,207 | 1,173,172 | 960,810 | 398,186 | 1,305,850 | 2,664,846 |
| January, 1944 | 223,286 | 94,952 | 19,417 | 96,960 | 42,346 | 290,005 | 57,904 | 331,055 | 1,155,925 | 964,314 | 406,851 | 1,281,484 | 2,653,649 |
| February | 202,057 | 84,639 | 18,023 | 87,611 | 37,891 | 291,969 | 50,490 | 314,546 | 1,087,226 | 928,634 | 376,321 | 1,200,331 | 2,505,286 |
| March | 212,801 | 104,566 | 18,744 | 89,931 | 40,994 | 286,175 | 46,275 | 324,633 | 1,124,119 | 943,405 | 402,197 | 1,322,550 | 2,668,152 |

## Employment—*Rate of Decline Increases*

*Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics*

### ALL INDUSTRY DIVISIONS

| | Montana | Idaho | Wyoming | Colorado | New Mexico | Arizona | Utah | Nevada | Total Mountain | Washington | Oregon | California | Total Pacific |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January, 1943 | 110 | 105.0 | 57.0 | 288 | 80.3 | 111.7 | 182 | 43.8 | 978 | 638 | 339 | 2,611 | 3,588 |
| February | 110 | 106.3 | 57.8 | 278 | 79.5 | 112.6 | 174 | 45.0 | 965 | 634 | 341 | 2,642 | 3,617 |
| March | 110 | 101.9 | 58.6 | 281 | 78.6 | 112.2 | 173 | 48.3 | 964 | 646 | 348 | 2,663 | 3,657 |
| April | 110 | 104.3 | 59.0 | 282 | 78.9 | 114.1 | 171 | 47.1 | 966 | 648 | 349 | 2,685 | 3,682 |
| May | 111 | 106.6 | 60.5 | 280 | 78.3 | 118.9 | 173 | 47.4 | 976 | 643 | 351 | 2,694 | 3,688 |
| June | 112 | 101.3 | 61.4 | 285 | 79.1 | 116.2 | 173 | 47.3 | 974 | 655 | 361 | 2,726 | 3,742 |
| July | 112 | 100.4 | 61.0 | 284 | 81.8 | 112.4 | 180 | 44.8 | 976 | 673 | 362 | 2,734 | 3,769 |
| August | 113 | 98.4 | 61.9 | 287 | 83.2 | 108.7 | 178 | 41.9 | 972 | 665 | 361 | 2,776 | 3,802 |
| September | 115 | 102.0 | 62.1 | 290 | 80.7 | 107.6 | 175 | 44.0 | 976 | 675 | 362 | 2,717 | 3,754 |
| October | 114 | 101.4 | 62.1 | 288 | 79.8 | 109.2 | 172 | 42.1 | 969 | 667 | 350 | 2,702 | 3,719 |
| November | 114 | 100.5 | 62.1 | 282 | 79.0 | 111.0 | 168 | 43.1 | 960 | 666 | 344 | 2,691 | 3,701 |
| December | 114 | 98.8 | 61.6 | 279 | 79.0 | 111.0 | 165 | 41.7 | 950 | 666 | 345 | 2,696 | 3,707 |
| January, 1944 | 110 | 95.0 | 60.6 | 265 | 76.4 | 108.4 | 150 | 40.4 | 906 | 644 | 334 | 2,635 | 3,613 |

### MANUFACTURING

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January, 1943 | 15.1 | 11.8 | 3.7 | 66.5 | 4.4 | 12.7 | 30.8 | 1.7 | 147 | 259 | 145 | 1,002 | 1,406 |
| February | 14.5 | 11.9 | 3.7 | 64.2 | 4.5 | 12.8 | 30.6 | 2.0 | 144 | 255 | 145 | 1,022 | 1,422 |
| March | 14.3 | 11.8 | 3.7 | 63.4 | 4.5 | 12.6 | 30.5 | 4.2 | 145 | 257 | 147 | 1,036 | 1,440 |
| April | 14.2 | 12.2 | 3.7 | 63.9 | 4.4 | 12.5 | 31.2 | 4.5 | 147 | 256 | 147.2 | 1,052 | 1,455 |
| May | 14.2 | 13.4 | 3.7 | 64.0 | 4.2 | 13.8 | 30.8 | 4.9 | 149 | 255 | 148 | 1,050 | 1,453 |
| June | 14.4 | 14.0 | 3.8 | 65.0 | 4.5 | 13.1 | 33.7 | 5.5 | 154 | 263 | 153.7 | 1,061 | 1,478 |
| July | 14.5 | 15.2 | 3.9 | 67.0 | 4.7 | 13.5 | 40.4 | 5.2 | 164 | 274 | 157.3 | 1,080 | 1,511 |
| August | 15.2 | 14.2 | 3.9 | 67.0 | 4.6 | 13.4 | 36.9 | 5.0 | 160 | 271 | 157.9 | 1,142 | 1,571 |
| September | 15.2 | 15.8 | 3.9 | 68.5 | 4.3 | 13.2 | 35.8 | 5.1 | 162 | 279 | 161.3 | 1,088 | 1,528 |
| October | 15.9 | 15 7 | 4.3 | 69.2 | 4.3 | 13.6 | 36.4 | 4.8 | 164 | 278 | 150.8 | 1,066 | 1,495 |
| November | 15.8 | 14.9 | 4.5 | 65.0 | 4.9 | 16.5 | 32.1 | 5.0 | 159 | 277 | 146.6 | 1,052 | 1,476 |
| December | 15.0 | 14.3 | 4.0 | 58.6 | 4.9 | 16.5 | 28.2 | 4.7 | 146 | 273 | 145.0 | 1,034 | 1,452 |
| January, 1944 | 13.9 | 12.8 | 3.7 | 53.7 | 4.8 | 15.9 | 22.4 | 4.6 | 132 | 267 | 139.1 | 1,016 | 1,422 |

Employment in California manufacturing industries again declined in March, the number of factory workers decreasing to 841,400 in March from 862,300 in February. The current level is below that of March 1943 when 852,800 wage earners were at work in California manufacturing plants. This is the first time since the war boom started that manufacturing employment is below the corresponding month of the previous year.

As a result of authorization by security agencies of the federal government, the statistics contained, for the first time since Pearl Harbor, detailed figures on employment in the aircraft and shipbuilding industries. From less than 12,000 factory wage earners in 1938, aircraft plants increased their working force to a peak of 244,700 in April 1943. Since that time there has been a steady decline and the number in March 1944 was reported as 212,300.

The wartime increase in the shipbuilding industry was even more phenomenal than in aircraft. In 1938, there were approximately 3,900 wage earners in boat building and repairing in California (excluding government navy yards). Sharp increase in employment in this industry did not occur until the middle of 1940 but by the summer of 1942 the number of wage earners in private shipyards exceeded the number of aircraft workers. Peak employment in shipbuilding was reached in September 1943 with 282,500 yard workers from which point employment declined to 262,200 in March 1944.

If clerical, supervisory, technical, executive and other personnel are added to wage earners, and if allowance is made for those thousands of workers classified in the metal working and other industries who are engaged in making parts, the total number of persons engaged in the production of airplanes and ships in the state exceeded 600,000 in March 1944 compared with less than 20,000 in 1938.

| | *San Francisco Bay Area* | *Los Angeles Indus'l Area* | *Total State* |
|---|---|---|---|
| Jan. 1943 | 205,900 | 336,000 | 651,600 |
| February | 218,100 | 346,800 | 677,300 |
| March | 221,600 | 356,300 | 695,400 |
| April | 220,400 | 361,300 | 698,800 |
| May | 219,300 | 363,500 | 702,200 |
| June | 226,600 | 365,000 | 713,900 |
| July | 228,200 | 367,400 | 718,300 |
| August | 229,700 | 379,900 | 724,300 |
| September | 227,800 | 366,700 | 710,200 |
| October | 228,300 | 365,800 | 708,400 |
| November | 229,500 | 366,300 | 709,300 |
| December | 225,300 | 365,300 | 701,100 |
| Jan. 1944 | 221,200 | 369,200 | 698,800 |
| February | 218,600 | 363,600 | 689,600 |
| March | 212,100 | 354,700 | 670,900 |

## Surplus—*More Steel Coming Up*

Army and Navy have agreed to list their available surplus material inventories with the Redistribution Division of WPB, to avoid the delays and complications resulting from government ownership of the property. Consequently Pacific Coast offices of Redistribution are expecting shortly a flow of steel, hardware, etc. In some instances the suppliers may be willing to take the material back. April movement of surplus materials in and out of WPB surplus stocks for the Coast was as follows:

| | | |
|---|---|---|
| Steel | 20,400,000 lbs. | 21,000,000 lbs. |
| Copper | 300,000 lbs. | 1,548,314 lbs. |
| Aluminum | 155,660 lbs. | 94,784 lbs. |
| Total, all controlled materials | 20,855,660 lbs. | 22,643,098 lbs. |

## SWPC—*Smaller War Plants Busy*

Practically all of the 2,000 smaller war plants in northern California, Nevada, Idaho and eastern Oregon region now registered with the Smaller War Plants Corporation are generally fully occupied and in a healthy condition, according to Colonel F. M. Smith, regional director. During April, 2,813 contracts were placed with the assistance of SWPC, for a total of $15,236,644, an average of $3,750,000 per week. Of these contracts, 1,547 were prime contracts, placed directly by the procurement agency, and 1,266 were subcontracts, farmed out by holders of large prime contracts. 1,132 of the jobs, for a total of $1,073,349, were placed by non-government agencies, such as state, county and municipal purchasing agents, and a few large private firms. Cumulative totals since July 1, 1943, show 9,388 contracts for a total of $63,033,817.

## Copper—*Output Rising*

Copper output from the combined Western states increased 6,100 tons (7.4 per cent) in March as compared with February, the largest increase (2,665 tons) being from Arizona, the March output reaching a record level for the year.

Bureau of Mines figures for the 11 Western states are as follows:

| | *January* | *February* | *March** |
|---|---|---|---|
| Arizona | 32,930 | 33,335 | 36,000 |
| Montana | 11,283 | 11,525 | 12,000 |
| Utah | 26,933 | 25,758 | 26,500 |
| Total (inc. other states not listed) | 88,546 | 87,352 | 93,617 |

## Freight—*Western Figures*

Partly as a result of an increase of 2,558 cars of grain and grain products, amounting to 40 per cent, over the same month last year, April carloadings in the territory of the Pacific Northwest Advisory Board showed a total gain of 9,142 cars more loaded than in April 1943. For the first four months of the year there were 402,212 cars loaded, compared with 333,329 in 1943 and 418,688 in 1942.

Total traffic figures for the railroads in the Far West are as follows:

| | Loadings | Received from eastern connections | Total |
|---|---|---|---|
| March | 421,188 | 320,763 | 741,951 |
| April | 489,777 | 336,101 | 825,878 |

### THE TREND

**Aircraft output seems to have reached a plateau, shipbuilding is picking up slightly from a dip early in the year, and steel and copper activity are on the rise. Forced draught in the lumber industry is producing results, although the lack of manpower is great handicap. Aside from aluminum and magnesium cutbacks, there seems to be no decline in sight for industrial activity in the West, and electric power companies feel that they have reached a plateau. Bonneville has rather sharply reduced its consumption estimates for next winter.**

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### Synthetic Gas Costs

Synthetic gasoline production costs about three or four times as much as natural gasoline, according to R. R. Sayers, director of the U. S. Bureau of Mines, testifying before a House appropriations subcommittee.

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# THE WEST ON ITS WAY

## ARIZONA

BRIDGE—Maricopa County has set up plans for a new South Central avenue bridge as part of its postwar planning program and has deposited $10,500 with the Arizona Highway Dept. to be matched with $24,500 by the U. S. Public Roads Administration. Estimated cost of the proposed new bridge at about $600,000, part of which will be paid by the public roads bureau and part by the county. Design and construction will be supervised by the Arizona Highway Dept.

AIRCRAFT BUILDING—Winston Bros., Phoenix, Arizona, have been awarded a contract in conjunction with the Missouri Valley Bridge & Iron Co., C. F. Haglin & Sons, and the Sollitt Construction Co. for construction of a new building at the Goodyear Aircraft Corp., Phoenix, Ariz. The structure will be mill type, with sawtooth roof and will be 150x250 ft. in area.

FIRE STATION—W. A. Beaubien, Phoenix, Arizona, was awarded contract by the U. S. Engineer Office at $7094.96 for the construction and appurtenant facilities at Williams Field, Higley, Arizona.

"POORMAN" TARGET RANGE—Gibbons & Reed Co., Glendale, California, was awarded by the U. S. Engineer, Kingman, Arizona, at $17,051 for the construction of target range and appurtenant facilities at Kingman Army Airfield, Kingman, Arizona.

## CALIFORNIA

PIPELINE—Southern California Gas Co., Southern Counties Gas Co. and Pacific Lighting Corp., 810 South Flower street, Los Angeles, have plans for 67 miles of pipeline from Ventura to Los Angeles and 36 miles of pipeline from Ventura to Goleta. Their plans also call for enlargement of compressor plant and construction of dehydration plants.

NEW PLANT—General Engineering & Equipment Co. has been organized by Ralph N. Ross and will establish its plant at 205 South Arroyo Parkway blvd., Pasadena, Calif.

REFINERY PLANT—Richfield Oil Co. will build a refinery plant at 1801 Sepulveda blvd., Watson Dist., Richfield to cost about $514,500. Lummus Co., 634 South Spring st., Los Angeles, is builder.

BUILDING—The Austin Co. is in charge of the construction work on a $60,000 building for the Pacific Manifolding Company, Green and Powell streets, Emeryville. Designed as a combination paper storage unit and sales promotion department, it will be a two-story building of frame and brick construction.

FIRE SAFETY MEASURES—M. A. Little, 1 Grand View avenue, San Francisco, was awarded contract by the Federal Public Housing Authority, for fire safety measures on 3 dormitory buildings at Hillside Dormitory Project, Vallejo, at a cost of $180,000.

DEHYDRATED FOOD PLANT—C. B. Gentry Co.'s plans call for 45,000 square ft. additional operating plant space, new loading dock facilities and new 43x150 ft. warehouse addition. Six to eight tunnels will be added. To be located at Gilroy.

OFFICE AND STORAGE BUILDING—Connelly Iron Sponge & Governor Co. has obtained a building permit for office, storage building and pit at 540 Bouchet st., Los Angeles, 16x70 feet, to cost about $2800.

BUILDING—The War Dept. has announced authorization for construction of a $1,000,000 postal concentration center at the Oakland Army Base, Oakland. The building will occupy 350,000 square feet.

TERMINAL YARDS—WPB has approved a $350,000 development of the Santa Fe terminal yards at Richmond, Calif.

WAREHOUSE—Security Warehouse and Cold Storage Company, Santa Clara, is about to start on a $100,000 addition and improvement to its plant.


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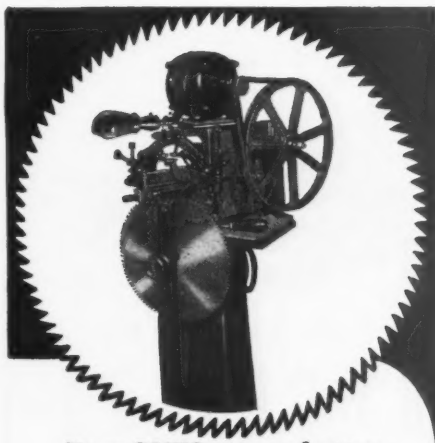

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## THE WEST ON ITS WAY

FACTORY BUILDING—Empire Construction Company, 344 Harrie Street, San Francisco, have the contract for construction of a factory building addition for Hammond Aircraft Company, Bayshore Highway, South San Francisco, Calif.

ASSEMBLY BUILDING—Griffith Co., 502 L. A. Railway Building, Los Angeles, has been awarded contract for foundations, etc., for an assembly building to be built on Foothill Blvd., Pasadena, for the California Institute of Technology.

CANNERY—Pratt-Low Preserving Company, Santa Clara, is making improvements and alterations to its plant. Estimated cost, $125,000.

PLANT ADDITION—Standard Iron Works Co. is building a plant addition at 1821 Colton avenue, San Diego, 20x30 feet.

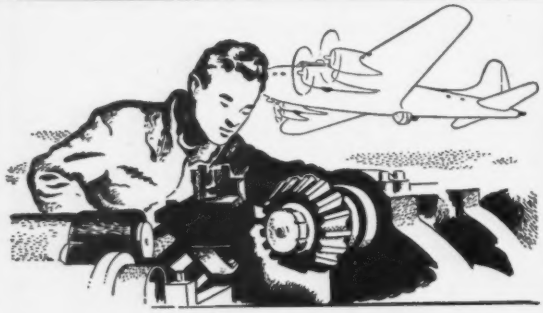
POST OFFICE ADDITION—Albert Schuster, 123 S "D", Oxnard, has the contract and work has been started on an addition to the post office building in Port Hueneme for the Berylwood Land Co. The addition will be 42x56 feet in area.

HANGAR-DOORS—Byrne Doors, Inc., 666 Mission street, San Francisco, was awarded contract by the U. S. District Engineer Office, Los Angeles, at $10,300 for constructing hangar doors for Butler prefabricated hangars at Long Beach Airfield.

FLOOD CONTROL WORK—The Army has filed a request with the Los Angeles Board of Supervisors for the approval of plans for extending the paving and levee program of the Los Angeles River, in connection with Los Angeles County's flood control program. Estimated cost, $1,500,000.

BARRACKS BUILDINGS—John E. Branagh, Piedmont, Calif., has been awarded contract by the County of Alameda for the construction of new barracks buildings at the Prison farm at San Leandro. Plans were prepared by Architect Will G. Corlett, Bank of America bldg., Oakland.

ROUNDHOUSE—Western Pacific Railroad Co., T. L. Phillips, chief engineer, 526 Mission st., San Francisco, has let contract for a roundhouse and turntable to Barrett & Hilp, 918 Harrison St., San Francisco, to cost about $48,600.

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STORAGE BUILDING—A. S. Barnes, 433 S. Spring Street, Los Angeles, will build a storage building at 1446 N. Lake Avenue, Pasadena, for Bertea Products.

BUILDING—Modern Builders Supply Co., 130 N. Lake Street, Burbank, will build an addition to a building at 130 N. Lake Street for self.

BUILDINGS—Zoss Construction Company, 1037 N. Cole Ave., Los Angeles, has been awarded $1,268,299 contract by U. S. District Engineer Office, Los Angeles, for construction of buildings at Army Air Forces Supply Depot, Maywood, Calif.

EQUIPMENT BUILDING—Carl Swenson Co., 355 Stockton Ave., San Jose, has been awarded $96,324 contract by U. S. Navy for construction of an equipment building at Moffet Field, Sunnyvale, Calif., for the Ames Aeronautical Laboratory.

ADDITIONAL CONSTRUCTION — W. J. Hunter, 660 Heliotrope Drive, Los Angeles, has been awarded contract by U. S. Dist. Engineer Office, Los Angeles, for additional construction at C.W.S. loading plant, San Bernardino, Calif.

PACKING HOUSE—Wm. P. Neil Company, Ltd., 4814 Loma Vista, Los Angeles, has been awarded contract for construction of packing shed in Yorba, Orange County, for the Associated Anaheim Growers, to cost $50,000.

STOCK ROOM ADDITION—Aviola Radio Corp., 703 W. Ivy Street, Glendale, will build a stock room addition at 703 W. Ivy Street for self.

WAREHOUSE AND MAINTENANCE BUILDING—Zimmer Construction Co., 1227 S. La Brea Avenue, Los Angeles, will build a warehouse and maintenance building at 5901 W. Imperial Highway, Venice District, for California Flyers, Inc.

STORE ROOM ADDITION—Chas. W. Pettifer, 703 W. 14th Street, Long Beach, has been awarded contract for construction of store room addition on E. First Street, Long Beach, for Glenn L. Clark and Co.

CAFETERIA—Anderson & Robinson, 430 - 29th Avenue, Richmond, Calif., have the contract for extension and alterations to cafeteria building, H. J. Kaiser Company, Richmond, Calif.

RAG SORTING & LAUNDRY BUILDING—The Ted R. Cooper Co., 1031 S. Broadway, Los Angeles, will build a rag sorting and laundry building for Max Fischer & Son, Inc., 1327 Palmetto Street, Los Angeles, Calif.

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## THE WEST ON ITS WAY

APARTMENT BUILDINGS—M. Burgbacher & Sons, 469 S. Fairfax avenue, Los Angeles will build twenty 3-family 12-room, frame and stucco apartment buildings in the 3500 blocks Chesapeake and Farmdale avenues.

AIRPORT RUNWAY—Plans for the construction on Lindbergh Field, San Diego, of a new 8500 foot runway have been submitted by Consolidated Vultee Aircraft Corp. to contractors for bids following approval of the project by the Navy Department. Estimated total cost of the improvement will be $3,700,000. Consolidated Vultee will pay for that part of the project done on the existing Lindbergh Field, which will be $2,100,000, and will carry out the entire construction program.

## COLORADO

HOSPITAL ADDITIONS AND ALTERATIONS—Architects Fisher & Fisher, Denver National Bank bldg., Denver, Colo., are preparing preliminary plans for the construction of additions and alterations to the County Hospital at Fort Collins, Colo.

AIRPORT ADMINISTRATION BUILDING—Architect Walter D. Mordaunt, 738 Thatcher bldg., Pueblo, Colo., is preparing preliminary plans for the construction of a two-story brick and concrete airport administration building at the Pueblo Airport for the City of Pueblo, Colo. Estimated cost, $150,000.

DETENTION HOSPITAL—Architectural Associates for State Hospital Work, 738 Thatcher bldg., Pueblo, Colo., have completed plans for the construction of a two-story, brick, female detention hospital building at the Pueblo State Hospital, Pueblo, Colo.

## IDAHO

NEW PLANT—Jameson Auto Parts Co., Lewiston, Idaho, has bought the Clearwater Foundry Co., building and equipment from RFC. The equioment has been sold to Lewiston Foundry & Machine Works, recently incorporated by George Wilkins and associates, who will open a new plant at 1815 Carson avenue.


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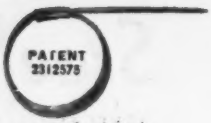


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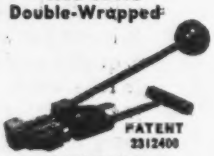


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NEW PLANT—Idaho Falls Potato Starch Co., Idaho Falls, will build an $80,000 plant with capacity for 250 tons daily, to be in operation within six months.

## MONTANA

SHOP ADDITION—The Northern Pacific Railway will build addition to shops at Livingston, Montana, at a cost of $1,500,000.

OIL PIPELINE—Yale Oil Pipeline Co., Denver, Colo. and Billings, Montana, have announced the construction of an 80-mile pipeline to carry oil from Elk basin, Wyoming to Billings and Laurel, Mont. refineries. Estimated cost $830,000.

## NEVADA

TARGET RANGE—General Construction Co. and J. Walter Johnson, 520° Hollywood blvd., Los Angeles, were awarded contract by U. S. Engineer Office at $9953.50 for the construction of "Poorman" type target range and appurtenant facilities at Las Vegas.

## OREGON

PRIVATE HOUSING PROJECT—Harry Mittleman, 710 SW Madison, Portland, has contract for the construction of a 92-unit, two story, brick apartment housing project costing $2,000,000.

GRAIN ELEVATOR—The Condon Grain Growers Cooperative Assn., Condon, Oregon, has received government approval for the construction of a 300,000 bushel crib elevator at Condon, Ore. The plans include the installation of two-man lifts. Estimated cost $105,000.

DRYING PLANT—A rotary drying plant is being planned by the apple growers association in Hood River. Erection of the drying plant will take care of the waste by-products of fruit and the finished form will be of value as a supplementary feed for stock.

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## THE WEST ON ITS WAY

PLANT—Lloyd A. Fry Roofing Co., Portland, will rebuild burned plant, 150x522 ft. to cost about $100,000, contract being given Drake Wyman & Voss.

PLANT FACILITIES—DPC authorizes plant expansion. Northwestern Ice & Cold Storage Co., Portland, Oregon, will spend $700,000 for plant facilities.

MANUFACTURING PLANT—Chipman Chemical Co., Inc., of Portland, Oregon, is reported to be planning construction of a plant at Willbridge, Oregon.

INTER-ISLAND LIGHTERS—The Willamette Iron & Steel Corp. has begun construction of nine all-steel covered lighters for inter-island transportation in the South Pacific.

PRIVATE HOUSING PROJECT—Interstate Homes, Inc., Salem, Oregon, have the contract and will start work immediately on the construction of a 20-unit private housing project in Sheridan, Oregon. Estimated cost, $90,000.

COMMERCIAL BUILDINGS—E. E. Settergren, 414 Couch Bldg., Portland, has been awarded $142,202 contract by the Federal Public Housing Authority, Portland, for construction of three commercial buildings for Vanport City, Portland, Ore.

SAWMILL—A. M. Minden Lumber Company is building an all electric powered sawmill with 25,000 feet daily capacity, Silverton, Oregon.

## UTAH

SEWER SYSTEM—Harry Lee, 118 W. 5th South, Salt Lake City, Utah, awarded contract by Layton, Utah, for the construction of a $109,371 sanitary sewer system.

ENGINE TEST BUILDING—Robert McKee, 4700 San Fernando Road, West, Los Angeles, has been awarded contract for the construction of an engine test building at the Ogden Air Depot, Ogden.


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## WASHINGTON

TEST PITS—Guy F. Atkinson, 807 - 4th Ave., Seattle, Wash., awarded contract by the U. S. District Engineer at $22,555 for the construction of test pits in connection with the Green River dam site about 6 miles upstream from Auburn, Wash.

CHLORINATING PLANT—The city of Toledo, Wash., is installing a chlorinating plant at the water system reservoir.

RAILWAY EQUIPMENT—The Northern Pacific Railway is planning an expediture of $20,500,000 including the purchase of 26 new locomotives. The program will include 1,000 new freight cars and the laying of 40,000 tons of new rails. Constructions projects listed were building a Diesel Locomotive Shop at Auburn, Wash., $500,000.

SCHOOL BUILDING—Hedeen Construction Co., 6273 - 19th Avenue, NE, Seattle, awarded contract by School District No. 303, Kitsap County at $35,324 for remodeling the Eagledale school in the community of Eagledale on Bainbridge Island. Architect Wm. Mallis, Lyon bldg., Seattle.

INSULATION REPAIRS—S. S. Mullen, Seattle, has been awarded contract bv the Housing Authority of Bremerton, Wash., at $76,500 for the construction of new ceilings with insulation, repairing roofs, installing new siding and insulating exteriors for 300 demountable houses in Bremerton. Plans by Architects Naramore, Bain, Brady and Johansen, Seattle.

RECREATION BUILDING—Dolph Jones, Tacoma, Wash., awarded contract by L. R. Durkee, regional engineer, Federal Works Agency, Seattle, at $66,969 for the reconstruction of a one-story frame recreation building at Olympia.

HOSPITAL ADDITION—Commissoners of Snohomish, Washington County, contemplate construction of an additional 150-bed unit to the Valley View hospital at Monroe. Cost of the addition is estimated at $100,000.

PLANT—The Pacific Car and Foundry Company has acquired all the stock of the Everett-Pacific Company, a shipbuilding firm, at Everett, Wash.


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# WESTERN TRADE WINDS

## NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

**Wallace Johnson** was recently appointed general sales manager of the Joshua Hendy Iron Works at Sunnyvale, California, according to an announcement from Charles E. Moore, president of Hendy, with whom Johnson has been associated a number of years. Mr. Johnson has been with the Hendy organization since November, 1942. **Morris Levit** is head of sales for the Joshua Hendy division, with **C. L. Barrett** as sales manager at the Pomona division and **L. T. Warner** at Crocker-Wheeler division. Another appointment is that of **Jean M. Allen,** well known designer of dredges, as Hendy's hydraulic-dredge consulting engineer. **Clarence F. Jensky** has been appointed special representative of the firm on turbine design, construction and manufacturing with headquarters in Washington, D. C. Mr. Jensky has been at the Sunnyvale plant for the past nine months.

**Air-Maze Corporation,** Cleveland, Ohio, announce the resignation of **E. B. Treidler** and the appointment of **E. H. Mintie** as direct factory representative and field engineer for the states of California and Arizona, with headquarters in Los Angeles.

**Warner F. Parker,** Los Angeles, succeeds **L. L. Mitchell** as manager of California division of the United States Steel Corporation. Mr. Mitchell is transferred to Oil City, Pa., as assistant treasurer. Mr. Parker will be supported by **Clarence J. Hill,** assistant to division manager; **R. F. Cann,** manager of tubular sales; **R. T. Watkins,** manager of machinery sales; and **Albert Lasken, Jr.,** manager of stores and general sales for the California division.

**E. J. Baughman,** formerly sales specialist for Hotpoint, on Pacific Coast, has been appointed Los Angeles district sales manager, **Edison General Electric Appliance Co.**

**Fred T. Miller,** with company three years, has been named manager, customer service department, **Adel Precision Product Corp.,** Burbank, Calif.

**E. B. Scott,** manager, repair and maintenance division, and assistant to vice-president, has been named sales manager, Engine Division, **Enterprise Engine & Foundry Co.,** San Francisco.

**Alan Frame,** Army Signal Corps resident inspector-in-charge at the Inglewood plants of the Universal Microphone Co. the past year and previously with the Packard Bell Co., Los Angeles, in similar capacity, has terminated the Army affiliation and joined the technical force of the Hoffman Radio Corp., Los Angeles, as special assistant to the company chief inspector. **Paul F. Van Dusen,** lately expediter and purchasing agent for Pacific Electronics, Spokane, Wash., has joined Hoffman Radio Corp., as assistant purchasing agent.

**Reliance Steel Products Company's** name has been changed to Reliance Steel Company according to **Charles J. Roe,** vice-president and general manager. There is no change in ownership, management or policies. Mr. Roe, a former member of the Purchasing Agents' Association is now associated with **Tom J. Neilan** in this company. **Jack Moore,** formerly of Columbia Steel Company, is the sales manager. Office and steel warehouse are at 2068 E. 37th St., Los Angeles.

**R. M. Edinger,** formerly of R. J. M. Co., Los Angeles has been named district manager in charge of Finkl Steel Products Corp. of California, newly formed subsidiary of A. Finkl & Sons Co., Chicago.

**K. T. Vangsnes** has been named head of the magnesium division of the Los Angeles office of Dow Chemical Co., Midland, Mich. For the past five years Mr. Vangsnes has been vice-president of Magnesium Products Inc., Los Angeles.

**L. S. Egea** has been appointed exclusive sales engineering representative on the West Coast for the Selas Co., Philadelphia. His offices are at 1151 South Broadway, Los Angeles.

**American Lumber & Treating Co.** recently appointed **G. M. Dewart** as sales manager for their new San Francisco office. The sales address has been changed to 604 Mission Street. Mr. Dewart was formerly with the company's sales force at New York.

**Victor J. Wagoner,** formerly manager of the machine tool division of Harron, Rickard & McCone, is now manager of manufacturing for Kinner Motors of Glendale, Calif.

**Albert E. Horn, Jr.,** who has been resident manager of the Oregon division for the General Petroleum Corporation for a number of years with headquarters at Portland has been ordered transferred to Seattle. He will take over the job of resident manager of the Washington division.

**Freeport Sulphur Company** announces appointment of **Earl K. Nixon,** former director of the state department of geology and mineral industries, as manager of western exploration. Nixon will replace **David St. Clair,** who has been transferred to the company's headquarters in New York. Headquarters for the exploration department will be moved from Spokane to San Francisco, in order to afford a centralized location for mining districts of western United States, Canada and Alaska.

**R. S. Payne** succeeds **D. B. Campbell** as manager at the Denver Ordnance plant for the Remington Arms Company. Campbell has been transferred to the East.

**James E. Sellers,** formerly Chief Engineer of the WPB where he supervised conversion of many plants to war production, is now Engineering Consultant for the Research Division of the Plastics Industries Technical Institute in Los Angeles.

**A. P. Johnston Company,** Los Angeles, manufacturers of stainless steel welding rods, announce appointment of **Arizona Welding Equipment Company,** 230 S. Central Avenue, Phoenix, Arizona, as a distributor for that area.

Edward Scriven

Ben Critzer

**L. Edward Scriven,** left, heads the new San Francisco office opened by McKinsey & Company management consultants of New York and Boston, and the affiliated firm, McKinsey, Kearney & Company of Chicago. Mr. Scriven was formerly deputy regional director of WPB. **Ben Critzer,** right, sales manager for Fruehauf Trailer Company, new Spokane branch, has been active in the automotive industry for 18 years throughout the states of Washington, Idaho and Western Montana. The branch is at 118 South Division St.

**Ziegler Steel Service Company,** Los Angeles, has inaugurated a steel warehouse service representing leading firms in Chicago, Detroit and Cleveland. Their offices are located at 634 S. Gramercy Place, Los Angeles 5.

**B. F. McDonald Company** have a new home. Occupying an entire block between 51st and 52nd Streets on South Hoover St., in Los Angeles, the building permits the McDonald Company to consolidate its assembly and production facilities under one roof. The company also maintains sales and service offices in San Francisco and Houston.

**E. L. Foreman** has been appointed manager of the newly-opened Los Angeles branch office of Whitman & Barnes, Detroit. He was previously manager of their New York branch. **Lee W. Shetler** will be Mr. Foreman's assistant in the Los Angeles and Southern California area. **R. J. Rohde** represents the company in San Francisco, northern California, Utah and Nevada, while **W. H. Dick** handles the Oregon, Washington, Montana and Idaho territory. The Los Angeles address is 2305 East Eighth Street.

**Tivit Products Co.,** a new manufacturer of equipment for metal processing and cleaning, is now operating in Los Angeles with **Bruce Wiswall** as general manager. **M. P. Greffoz** directs field engineering service.

**Arthur F. Skaife,** for past 12 years manager of San Francisco district for the **Westinghouse Electric Elevator Company,** has been named to the newly created post of Pacific Coast district manager for that company.

**Connelly Iron Sponge & Governor Co.** of Chicago announce opening of its new Pacific Coast plant located at 540 Bouchet street, Los Angeles. The plant manager will be **James J. Cuddihy** who has been with the organization for 22 years.

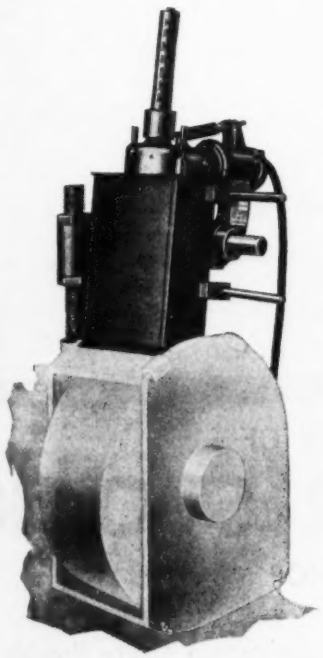
**Harold W. Pearcy,** since 1931, purchasing agent of **Percival Steel & Supply Co.,** Los Angeles, has been made vice president in charge of purchasing.

**R. K. Hoover,** who has been on leave for 18 months with WPB's western log and lumber administration's office in Portland, named general mill superintendent of the **Weyerhaeuser Timber Co.,** succeeding **Willard Morse,** now personnel manager.

# THE SHOWCASE

1

**Automatic Composition Applicator**—The Hammond Auto-Doper is a new composition applicator for use on any type of polishing and buffing machine—it is air-operated and can be used for either cylindrical or rectangular bars. It gives a more uniform application of composition, thus improving quality of work and economy in composition costs. Hammond cylindrical Auto-Doper (Type ADC) is for cylindrical composition bars up to 2¾ in. diameter and 10 in. long. Hammond rectangular Auto-Doper is for composition bars 2 x 2 in. and up to 2 x 12 in. wide and 10 in. long, for applying composition to wheels from 2 to 12 in. width. *Hammond Machinery Builders, Inc., Kalamazoo, Michigan.*



2

**Safety Goggles**—A rugged, new, all-plastic goggle for general industrial utility has one-piece lens of shatterproof methacrylate which withstands heavy impact and is highly resistant to pitting caused by sparks. Curved plastic frame fits snugly but comfortably, shielding the eyes from every angle. Sturdily made to give long safe service and reinforced with high-brass clip at bridge, non-fogging, easy replacement of low-cost lens, flattering appearance, light weight. *California Goggle Co., Hollywood 20, Calif.*

3

**Tilt-Bed Trailer**—A new 10-ton capacity Tilt-Bed Trailer simplifies the loading or unloading of farm or construction equipment anywhere out in the field without the use of a loading platform. With a Tilt-Bed a lone driver can load or unload a tractor in less than a minute. It is also available in capacities from 5 to 25 tons and in a goose-neck type frame. *Fruehauf's Western Manufacturing Plant, Los Angeles, Calif.*

4

**Cargo Winch Control**—A new unit type for winches located on the open decks of cargo vessels has been especially designed for use on Victory and similar ships where the sizes of the deck houses has been reduced in order to provide additional deck space for cargo. One important feature of this control is the standardized dimensions and they can be interchanged with similar units manufactured by other concerns. The need for a separate control panel and power resistor in the deck house has also been eliminated. The new control consists of a control panel, a magnetic marine brake, and a power resistor, each mounted in a separate compartment of a heavy, watertight, steel enclosure. The doors of the heavily reinforced enclosure are easily opened, or if necessary, removed, and they lock firmly with forged steel handles. *General Electric Co., San Francisco, Calif.*

5

**Battery Hold-Down Clamp**—This new patented battery hold-down clamp was designed to alleviate the difficulties in removing or changing batteries under extreme climatic conditions, or where the element of time-saving is important. The cam lever is easily released manually and is obtainable in various nut sizes and screws. *Paul Henry Company, Los Angeles 34, Calif.*

6

**Resistive Steel Partition** — A new demountable two-hour fire resistive steel partition has been developed by the H. H. Robertson Co. in cooperation with the Mellon Institute. The problem of installing is relatively simple and speedy. There is no mess from the wet type to construction using tile and mortar since these partitions are two steel fluted sections separated by insulating material, available in two foot width and in lengths up to 22 feet. The high salvage value that is obtained from this wall simplifies the problem of moving it if desired. The wall is of the non-bearing type and is designed only to support its own weight and the horizontal forces of pressure and suction. It is mounted on metal girts. *H. H. Robertson Company, San Francisco and Los Angeles.*

7

**Scoopmobile** — Designed for movability and speed, the Scoopmobile can pick up, load and dump in those unusually tight places. Especially adaptable to stockpile work. Capacity of the scoop is ¾ cubic yard; the engine, an 8-cylinder Ford truck type, 95 h.p. There are four speeds forward and one reverse and the range is from 2 mph to 30 mph. *Mixermobile Manufacturers, Portland 16, Oregon.*

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8

**Combination Etcher and Demagnetizer**—Instead of having an etcher and a separate demagnetizer, the new Ideal combination incorporates these two tools into one—in one compact portable case. To etch small tools and parts, simply place them on work-plate, turn switch "On" to proper heat and start etching. To demagnetize,

just turn the switch to "On" to either No. 1 or No. 2 position and proceed as with ordinary demagnetizer. Overall dimensions 8¼x11½x8⅝ in. Weight, 39 lbs. *The Ideal Commutator Dresser Co., Sycamore, Illinois.*

9

**Rheostat or Multiple Potentiometer**—This multiple control is operable either as a rheostat or a multiple potentiometer. In it a number of contactors roll upon a single resistance coil. Each of the contactors is in the form of a twisted bar and is insulated from each other contactor to engage successive convolutions of the coil to permit accurate control of the current supplied without influencing the current delivered by any of the other contactors. *Amercian Pattern and Manufacturing Company, Detroit, Michigan.*

10

**Explosive Rivet**—An improved rivet that fits itself to the hole has been developed for greater speed and uniformity of results in riveting military planes. The rivet is expanded from within along substantially its entire shank by a tiny explosive charge. This is a marked improvement over the original rivet produced by the Du Pont Company. An exact fit between the drilled hole and the shank is no longer required, and more rapid insertion of the rivets is possible. After insertion the new rivet, like the original, may be expanded by one man at the rate of ten to twenty per minute, as contrasted with two to four per minute for most "blind" rivets. New rivets will be available in diameters of five thirty-seconds of an inch and three-sixteenths of an inch in the modified brazier types. Exceptional possibilities for speeding fabrication of radios, refrigerators, automobiles, etc. *Explosive Department of E. I. Du Pont de Nemours & Co., Wilmington 98, Dela.*

11

**Sticker**—Here is a sticker that has bee successfully used by many plants as a con stant reminder of the vital importance o the individual effort of the men and wome on the production front. Place the sticke upon desks, machines or work benches where men now in the armed forces for merly worked. It reads: ". . . . . worke here. He is now serving in the armed forces. While he is fighting for you, can you give less than your best for him? *Avery Adhesives, Los Angeles, Calif.*

12

**Safety Hats**—Resumption of the sale o McDonald type "T" safety hat has jus been announced. This hat is well known in safety circles, made from a special alumi num-alloy, gives hat maximum strength a minimum weight. Weighs only 11¾ oz with two shell sizes available—small for sizes 6⅝ to 7⅛ and large for 7¼ to 7⅝ inclusive. *B. F. McDonald, Los Angeles Calif.*

13

**Long-Taper Pipe Reamer**—As a result o the long taper, this new reamer is claime not only to avoid flaring, splitting or re ducing wall of pipe but to cut burr usually clean and easily from the inside of pipe or conduit. *The Ridge Tool Com pany, Elyria, Ohio.*

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# YOURS FOR THE ASKING

1436

**Precision Gage Instruments**—A new folder "Jewels of Industry," just released by the manufacturers of precision gate instruments for distribution to industries who are finding increased values in the proper use of precision measuring instruments. An introduction of the company's training aids in the use and care of gages and gaging instruments is shown as an important step which industry must take in teaching its inspectors, engineers, and machinists. Copies of this informative folder are available upon request from *Continental Machines, Inc., Minneapolis 4, Minn.*

1437

**Kover-Oil**—Literature showing how to paint this compound directly over oil saturated surfaces, machinery, asphalt, to act as an effective sealer, may now be obtained from *Rock-Tred Corporation, Chicago 6, Illinois.*

**You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.**

1438

**Electrical Equipment**—28-page pocket size booklet "Care and Maintenance of Electrical Equipment" contains simple instructions for keeping switches, panelboards and switchboards in good operating condition. The booklet, fully illustrated, also contains a parts ordering list of Square D electrical equipment. *Square D Company, Los Angeles 21, Calif.*

1439

**Electronic Control**—The fundamentals and the various applications of electronic control are interestingly described in a new 12-page bulletin (GEA-4126). Various advantages afforded by the use of electronic control are described and the publication illustrates many practical applications. The fundamental principles of electronic tubes and their operation are explained in clear, simplified language. *General Electric Company, San Francisco, Calif.*

1440

**Gas and Electric Welding**—A booklet giving a bird's-eye view of the facilities and services established by the Victor Equipment Company has just been released. *Victor Equipment Company, San Francisco 7, California.*

1441

**Turbine**—24-page illustrated booklet, "The Story of the Turbine" GEB-129, is a summary of the highlights in the development of the steam turbine, and an explanation of the place the turbine is now filling in war production and will fill in America's peacetime living. *General Electric Company, Schenectady, N. Y.*

1442

**Condensate-Purity Instruments**—Anyone concerned with preventing contaminated condensate from reaching boilers and prime movers should be interested in the 23-page, revised edition of the catalog N-95-163, "Micromax Condensate — Purity Instruments for the Steam Plant." The catalog reveals how condensate is sampled continuously by means of a conductivity cell, and its purity indicated and recorded automatically by means of a Micromax recording instrument. When contamination is present, the recorder can flash a signal or sound an alarm so that the operator can correct the condition. A simple L&N signalling conductivity controller, which neither indicates nor records—just signals and controls—also is listed in this publication for the first time. *Leeds & Northrup Company, Philadelphia 44, Penna.*

1443

**Business Systems**—If you are interested in better records in your organization, you'll want to look over the business forms in the Uarco portfolio. Samples are made up in this free portfolio to meet the needs of a particular industry. Sample forms are also made up to fit any particular system such as invoices, shipping records, personnel forms, etc. *United Autographic Register Company, Oakland, California.*

1444

**Thermostatic Bi-Metals**—A new technical bulletin is offered by the Callite Tungsten Corporation on their Calliflex Bi-Metal, which is described as a reliable economical material for use as a temperature element in automatic control. Bulletin No. 155 gives technical data as well as other information of value to the product designer and engineer. *Callite Tungsten Corporation, Union City, N. J.*

1445

**Baffles**—Much greater fuel economy can be obtained by modernizing baffles and furnaces A new bulletin entitled "Economy Boiler Baffles" explains how significant economy can be effected by proper design. It presents blueprints showing old and new locations of baffles together with an account of savings made. *The Ramtite Co., Division of the S. Obermayer Co., Chicago 8, Illinois.*

1446

**Technical Advisory Service**—Booklet designed to aid small manufacturers suffering from production headaches, prepared by the Smaller War Plants Corporation, summarizes the services small manufacturers may receive. It describes the organization of the Technical Advisory Service and the cooperative plan by which assistance is obtained. It outlines procedure through which SWPC will assist business men in evaluating and obtaining access to patents held by the Alien Property Custodian and the possible new products and inventive ideas submitted to other governmental agencies. *Technical Advisory Service, Smaller War Plants Corporation, HOLC Bldg., First and Indiana Ave., Washington 25, D. C.*

1447

**Packing War Materiel**—"Speed Packing Manual for War Material," a timely, attractive and complete manual, will answer most of your shipping and packing questions, help you pack your products better, faster and cheaper. It contains the latest information on government specifications and packing methods for overseas shipment. New ideas in packing are shown in step-by-step sequence. Many photographs are used to show how different types of products are packed. Samples of wartime packing materials are included with information of where they are most useful. *Sherman Paper Products Corporation, Newton Upper Falls 64, Massachusetts.*

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## YOURS FOR THE ASKING *(From Pg. 81)*

**1448**

**Steelweld Machinery**—A new catalog on Cleveland Steelweld Bending Presses has just been issued. Highly illustrated, the catalog contains photographs of varied work being performed and covers many details of construction. A complete table of sizes and dimensions is included. Detailed data is also given on Cleveland Steelweld bulldozers. Catalog No. 2010-A will be sent free upon request. *The Cleveland Crane & Engineering Co., Wickliffe, Ohio.*

**1449**

**Wire Slings**—Various types of slings are made by the Roebling Company. Their new catalog gives data on wire rope and grommet slings for both standard and special uses and is illustrated with application pictures of slings in actual service. A section of the book is devoted to various types of wire rope fittings which are used in connection with slings. *John A. Roebling's Sons Company, Trenton 2, New Jersey.*

**1450**

**Postwar Building**—Buildings erected during the past few years using Robertson Q-Sections for floors, walls, partitions, and roofs point the way to postwar building types. An interesting portfolio has been prepared—the data and illustrations show what to expect in every type of building . . . commercial, public, industrial and residential. *H. H. Robertson Co., Pittsburgh, Penna.*

**1451**

**Fire-fighting Equipment**—"Inspection and Maintenance of First Aid Fire Extinguishers" is a helpful 12-page booklet, simply written and graphically illustrated. A basic maintenance system is outlined and the classification of various types of fires is defined. The importance of actual demonstrations in fire-fighting technic is stressed. This manual may be obtained without charge from *Walter Kidde & Co., Inc., New York 6, New York.*

**1452**

**Polishing Lathe**—8-page illustrated engineering and data bulletin explains in detail the principle and method of operation of the Lima Magnetic Polishing Lathe, illustrating method of application of magnetic chuck, several different types of face plate applications for holding work to be polished, burred or lapped. *The Lima Electric Motor Company, Lima, Ohio.*

**1453**

**Welding and Cutting Equipment**—Attractive bulletin "Victor Welding and Cutting Apparatus Unit Bulletin, Form 20" is not a complete apparatus catalog but is intended to convey to the ultimate user a pictorial impression of the excellence of Victor equipment and how it may best serve him. *Victor Equipment Company, San Francisco, Calif.*

**1454**

**Commercial Laboratories**—Directory of the American Council of Commercial Laboratories is a guide to the leading independent testing, research and inspection laboratories of America, describing their organizations, officers and personnel and presenting their customary services and specialties. *American Council of Commercial Laboratories, New York 5, N. Y.*

**1455**

**Radiotone**—Today, Radiotone has an important place in the industrial picture. It actually pays for itself through increased production, reduction of lost man-hours and the reduction of accidents by promotion of better attention to the job. The Radiotone catalog No. P-110 describes this portable combination recorder, radio and public address system. Manufactured by Radiotone Division of *The Robinson Houchin Optical Company, Columbus 6, Ohio.*

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| Jeffries Transformer Co. | 70 |
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| Link-Belt Company, The | 20 |
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| Los Angeles Standard Rubber Co. | 82 |
| Los Angeles Steel Casting Co. | 73 |
| Mechanical Research Company | 67 |
| McCarty Company | 6 |
| Morton Salt Company | 63 |
| Oakite Products, Inc. | 67 |
| Pacific Screw Products Corp. | 64 |
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| Pioneer Rubber Company, The | 74 |
| Pioneer Rubber Mills | 56 |
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| Rapids-Standard Company | 49 |
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| Rock-Tred Corporation | 73 |
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| Savorite Engineering Company | 77 |
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| Stauffer Chemical Company | 48 |
| Stephens-Adamson Mfg. Co. | 4th Cover |
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| Sullivan Machinery Company | 15 |
| Sylvania Electric Products, Inc. | 16 |
| Thomas Truck & Caster Company | 11 |
| Tide Water Associated Oil Co. | 65 |
| Timber Structures, Inc. | 39 |
| Tri-State Supply Corp. | 7 |
| Tubbs Cordage Company | 58 |
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| United Autographic Register Co. | 43 |
| U. S. Hoffman Machinery Co. | 61 |
| Victor Equipment Company | 2nd Cover |
| Walworth California Co. | 66 |
| Watchemoket Optical Co. | 3 |
| Wrigley, Jr., William, Company | 60 |

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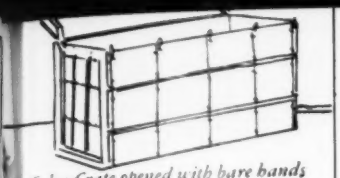
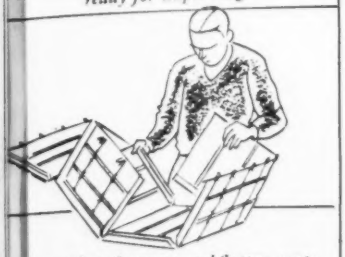
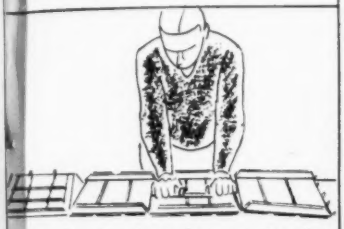


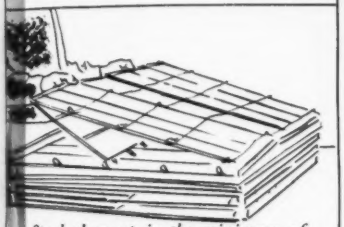
*Cabco Crate opened with bare hands ready for unpacking.*



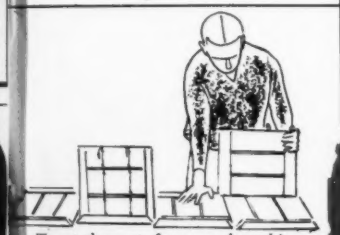
*...osen end loop fasteners and flatten crate.*



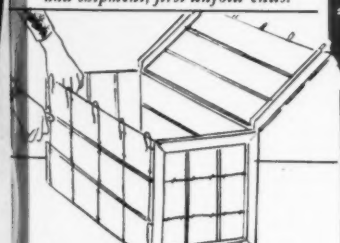
*Fold end sections in so that crate lies flat.*



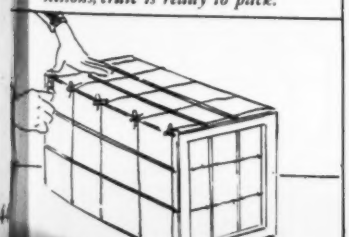
*Stack them up in the minimum of space.*



*To set them up for second packing and shipment, first unfold ends.*



*Tighten wire loop fasteners in end sections, crate is ready to pack.*



*Close cover with simple wire loop fasteners and it is ready for*

# Used and re-used time and time again

Today's shortages of raw materials and manpower serve to emphasize the importance of the re-use of shipping containers. Much can be saved when it is practical to return the empties for another load...provided, of course, the containers are such that they don't need complete rebuilding.

You don't have to re-build Cabco Allbound Crates and boxes because they are constructed in such manner that they can be knocked down with your bare hands and returned flat in one piece. No hammer, no nails are required. Thus Cabco offers distinct advantages over most other wood boxes. Since they can be returned flat they occupy the minimum of space in the carrier. Because they require no nails or construction work in setting up or knocking down the container itself is less apt to become damaged in packing, unpacking and returning. Furthermore, under proper conditions Cabco can present as new an appearance on the second and third shipments as they do on the first.

Cabco Allbound Boxes and Crates are made of light weight wood veneer stitched together with steel wire and re-inforced at the ends. They are extremely light in weight but due to scientific construction they possess great strength. Because they come to you flat in one piece they require the minimum of storage space. Wire loop fasteners eliminate the use of nails, make it possible to open and close them with your bare hands as often as you wish. These fundamental construction features give the same advantages to the second and third user as they do to the first.

*Yes, no matter how you look at it Cabco Allbound Crates and Boxes get top hono*
*And, no matter what you may be shipping . . . anything from beans to bullets .*

## CABCO Allbound Crates and Boxes bring 'em through!

Plan now for post-war air-borne shipments. Our design engineers will help you without cost or obligation, but (and we're sorry) unless you have the highest of priorities, don't expect too prompt service.

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